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Welcome to the 4th International Conference of New Horizons in Education-2013.

"The International Conference of New Horizons in Education-2013 (INTE-2013)" is an international educational activity for academics, teachers and educators. It promotes the development and dissemination of theoretical knowledge, conceptual research, and professional knowledge through conference activities, the conference proceeding book. This year, INTE-2013 received almost 830 applications. The conference academic advisory board accepted 760 applications.

The International Conference of New Horizons in Education-2013 aims to diffuse the knowledge and researches among academicians and lead to development in educational sciences.

We have lots of participants from 38 different countries. Some of these countries are Austria, Australia, Brazil, Canada, Croatia, Czech Republic, China, Egypt, Denmark, Finland, Germany, Greece, Hungary, Malaysia, Mexico, New Zealand, Philippines, Poland, Portugal, Romania, Russian Federation, Saudi Arabia, Slovenia, Slovakia, Spain, Switzerland, South Africa, Turkey, United Kingdom and United States

Should you have any enquiries regarding INTE conference, please do not hesitate to contact with us for any additional information you may require.

Finally, we would like to wish you all a pleasant stay in Rome and safe return back home. I hope that INTE-2013 will be a meeting you will pleasantly remember.

We hope we will meet again at the International Conference of New Horizons in Education 2014 in Paris/France.

Thank you...

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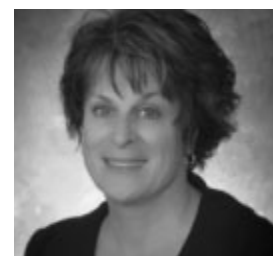
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Prof. Dr. Colleen Sexton

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Assessing Where it Matters Most - Your Instruction



Prof. Dr. H. Ferhan Odabaşı

Anadolu University

Does Digital Age Guarantee Digital Citizenship



Prof. Dr. Buket Akkoyunlu

Hacettepe University

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Learning architectural history by movie making: Ottoman architecture

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Abstract

This paper describes collaboration among Architecture, Modern Arts as Movie Making and History. *Creating a movie of one problematic of Ottoman Architecture* by using the Knob's experimental learning theory, was given to students on the upper-graduate lecture titled Civilization and Cultural History of Ottoman Empire of the History of Theory of Architecture Upper-graduate Program on the Department of Architecture, Yildiz Technical University.

Thus, the paper will have not only the process of a movie making, but also make searches on Ottoman history and architecture and put their ideas through and discuss their ideas in a group by using the experimental learning theory.

Keywords: history, Ottoman architecture, experimental learning

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1. Introduction

It is a common way to give some search titles to upper-graduate students of history on architecture upper-graduate program on a classical education point of view, till today. For their researches students were using power-point presentation program and during their day of presentation almost each of them could not tell their search title because of anxiety and excitement that they have.

To solve this main problem, one instructor and one assistant guided 15 upper-graduate architecture students used the experimental learning theory to create their own documentary movie to share and present their researches during 15 weeks long spring semester of 2012-2013.

2. Methodology: Experimental Theory

We shall not cease from exploration

And the end all our exploring

Will be to arrive where we started

And know the place for the first time.

T. S. Eliot, Four Quartets

Rather than most known method on education of Jeffrey and Craft's *teaching creatively and teaching for creativity* method, there is another well known theory of Kolb, which is called as *experimental learning theory*. Kolb's *experimental theory* offers a fundamentally different view of the learning process from that of the behavioural theories of learning based on an empirical epistemology or the more implicit theories of learning that underlie traditional educational methods, which are for mostly based on a rational idealist epistemology (Kolb, 1984, 20). This perspective on learning is called "experiential" for two reasons, says Kolb. The first is to tie it clearly to its intellectual origins in the work of Dewey, Lewin and Piaget. The second reason is to emphasize the central role that experience plays in the learning process. This reason differentiates experiential learning theory from rationalist and other cognitive theories of learning that tend to give primary emphasis to acquisition, manipulation, and recall of abstract symbols, and from behavioural learning theories that deny any role for consciousness and subjective experience in the learning process. According to Knob, this theory suggests through experiential learning theory a holistic integrative perspective on learning that combines experience, perception, cognition and behaviour (1984, 21).

Experimental learning theory proceeds from a different set of assumptions. Ideas are not fixed and immutable elements of thought but are formed and re-formed through experience. Learning is described as a process whereby concepts are derived from and continuously modified by experience. According to Piaget (1970) the creation of new knowledge is the central problem of genetic epistemology, since each act of understanding is the result of a process of continuous construction and invention through the interaction process of assimilation and accommodation. According to Kolb (1984, 26), learning is an emergent process whose outcomes represent only historical record, not knowledge of the future. The tendency to define learning in terms of outcomes can become a definition of non-learning, in the process sense that the failure to modify ideas and habits as a result of experience is maladaptive. According to Friere (1974) the education is an act of depositing, in which the students are the depositories and the teacher is the depositor. Instead of communicating, the teacher issues communiqués

and makes deposits, which the students patiently receive, memorize and repeat. Thus, to eliminate negativities of this According to James (1890) knowledge is continuously derived from and tested out in the experiences of the learner on the classical system and to have new opportunities it is always better to have a kind of interact education in the class. Thus, learning involves transactions between the teacher and the students. According to Kolb (1984, 36), also learning is the process of creating the knowledge. Also knowledge results from the transaction between these objective and subjective experiences in a process called learning. Hence, within the parallel to Piaget method, Kolb (1984, 37) says that to understand knowledge, first epistemology must be understood - the origins, nature, methods, and limits of knowledge. He found that epistemology essential to take into account the nature of the subject matter in deciding how to help students learn the material at hand. Trying to develop skills in empathic listening is a different educational task, requiring a different teaching approach from that of teaching fundamentals of statics (Kolb, 1984, 37).

3. Content And Context Of The Lecture

The 15 weeks long semester had 5 different educational phases,

1. Speaking about the history of Ottoman Empire out of important architectural examples such as palaces, traditional wooden Turkish-Ottoman houses, religion architecture, etc. from the 15th century, till the 20th century for the first 4 weeks,

2. Defining a problematic of Ottoman Architecture, (the group chose titles mostly of the 18th century of the Ottoman Architecture; only two group chose titles of the 19th century of the Ottoman Architecture)

3. Having 2 seminars about movie making digital programs- (Scenery Writing by Miller, W.(2009); Making of Movie by Worthington, C.(2011); Scenery Writing by Marland, J., Richards, J. (2012)).

Speaking of scenery writing,

Speaking of selecting of images,

Speaking of selecting of music,

4. Creating of documentary movies,

Writing of the scenery of the documentary movie,

Defining chapters of the movie,

Choosing of the images related with the chapters,

Adding of the voice which reads the research documentation of the movie,

Adding of the right music piece with the right tempo and the mood to the documentary movie,

5. Making presentations on the auditorium,

6. Discussions of each presentation.

4. The Process

In order to be fair presentation dates have been selected and organized by draw. Duration of presentation has fixed to be thirty minutes. The students dubbed most of the presentations and some students preferred to use subtitles and have their own experimental memories.

The group of upper-graduate students had some historical records as on the theory of Knob, as oral history study, which is about the interviews with the writers of original history text that they used, and having researches on Ottoman archive and trying to build up their own experimental scenarios.

Mostly they choose the visual material from Internet and some combined their own fractions of shootings. Basically the students use three books as reference. The sources were those describing fundamental principles of scenario writing and film making;

1. Scenery Writing by Miller, W. (2009);
2. Making of Movie by Worthington, C.(2011),
3. Scenery Writing by Marland, J., Richards, J. (2012)

Following research on the topics, students wrote their reports and scenarios. According to the scenarios, they prepared their visual material they shot, added the music chosen and finalized by dubbing.

Contents of the presentations were chosen amongst the texts, articles, papers and books of the researchers studying on Ottoman Architecture. Additionally, the students were expected to criticize the subject and to append their review on the presentation. In this context;

1. External reading is expected for each article (conveying features of the article.)
2. Conveying the article for internal reading,
3. Conveying other articles on the same subject written by different researchers and their opposing views,
4. Criticizing and reviewing the article chosen,
5. Giving reference for the articles used are expected.

5. Movies And Discussions

Three best presentations amongst all are as follows:

1.The Palace and Festivals of Sadabad; 2.Myths, Fantasies and The Realities; 3. Women and Space on Ottoman Daily Life on 18th Century

5.1. *The Palace and Festivals of Sadabad*

(The title is about the history of the Palace of Sadabad and the development and changes on the daily life of the 18th century on public spaces):



Fig. 1. A gravure that shows entertaining women on the garden of Sadabad Palace, Kagithane.

The movie starts by telling about the brief historical background of location of the Sadabad Palace; Kagithane. The narrator tells about the every Ottoman Emperor Period with their portraits as the scene and gives information of the every era. Then narrator starts to talk about Tulip Era, which includes the period of the design and construction of the Palace. It shows the drawings of the palaces from France that has been used as an inspiration for the project. Then the movie continues with the decisions in the project by showing their drawings from Ottoman Archives. While telling about the architecture and importance of the project where public space and private space of Empire gets alongside, the movie shows paintings, engravings and drawings from this era to enable the viewer imagine and understand the project better. The movie tells about the Palace till today's remains after its demolition and shows for five minutes a self taken video by zooming in and out to surroundings, ending by telling the importance of the project from Ottoman Empire's Westernization Period where administrative, social, cultural and architectural changes were reflected.

5.2. *Myths, Fantasies and The Realities*

(The title is about the myths and fantasies on Ottoman history writing):



Fig. 2. A miniature that shows a scene of a mother tells a mythical story to her child.

The movie starts by questioning the terms knowing, learning, understanding, criticizing, thoughts and information. It goes on with the discussion of the importance of teaching critical thinking in architectural education for the first year students. While the narrator talks about the issue, scenes from different architecture school's ateliers are being shown. It shows students' different processes of designing and critics they take from the professors. The narrator from this discussion passes to the topic "Menkibe". Origin of the word *menkibe* comes from Arabic and it means: narrative about the extraordinary events. In the scenery it shows parts from Persepolis and TV programmes of Turkish historians. Narrator tells that because of the reason that there was no printing press at the beginning of Ottoman Empire, the historical facts were narrated by *menkibes*. The film ends by narrator saying responsibilities of historians and social scientists is fighting, questioning and establishing realistic historical sense.

5.3. Women and Space on Ottoman Daily Life on 18th Century

(The title is about how woman figure is becoming transparent on the public space at 18th century on Ottoman daily life):



Fig. 3. A picture, which was coloured afterwards, shows Ottoman women entertaining on a public recreation place on the 18th century.

The narrator starts to the movie by talking about gender mainstreaming and space relation. It goes on by telling that the Ottoman Empire women's movement in town, transportation and clothes were restricted by the imperial order. On the scenes dominantly the paintings and miniatures about the women from the 18th century supports the facts. The narrator especially tells about the ban of woman entering into recreation spots and that they were only able to visit excursion spots which was only possible on Fridays. Another important restriction was about the clothes and from veil to shoes it was defined by imperial rules. Ending the movie by a part of a film with a

woman walking on the street in modern days, the narrator says that there is not only gender hierarchy on woman but also it is a place where the ideologies are being produced and governance is being sustained.

6. Conclusion

Among multiple benefits of the movie making process some that stand out are: (1) students participated in searching a problematic of Ottoman Architecture, (2) students learned to work on an estimated time period, (3) students familiarized themselves with digital movie making programs while thinking on history of architecture, (4) students learned to appreciate different point of views on the time period of world history, (5) students were able to visualize their ideas to discuss on a group with using of a new medium, movie making (6) students learned 3 important movie making digital programs.

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4th International Conference on New Horizons in Education

Learning architectural history by movie making: world contemporary architecture

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Abstract

This paper describes collaboration among Architecture, Modern Arts as Movie Making and History. *Creating a movie of one problematic of World Contemporary Architecture* was given to students on the upper-graduate lecture titled Contemporary Architecture of the History of Theory of Architecture Upper-graduate Program on the Department of Architecture, Yildiz Technical University.

Thus, the paper will have not only the process of a movie making, but also make searches on World Contemporary Architecture and put their ideas through and discuss their ideas in a group by using the created movies as mediums.

Keywords: history, contemporary architecture, creative thinking, thinking creatively

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1. Introduction

It is a common way to give some search titles to upper-graduate students of history of architecture upper-graduate program on a classical education point of view, till today. For their researches students were using power-point presentation program and during their day of presentation almost each of them could not tell their search title because of anxiety and excitement that they have.

To solve this main problem, one instructor and one assistant guided 15 upper-graduate architecture students used Jeffrey and Craft's *teaching for creativity- teaching creatively theory* to create their own documentary movie to share and present their researches during 15 weeks long spring semester of 2012-2013. Each student selected a problematic of World Contemporary Architecture from 1970's, till today.

On modern educational programs there are 2 main methods. One is offered by Jeffrey and Craft (2004) and named as *teaching for creativity- teaching creatively* and the other is offered by Kolb (1984) and named as an *experimental learning*. Here, the first one was chosen and movies were created according to the references that were taken from the method, which is pointed out by the related theory.

According to Jeffrey and Craft (2004), the former is defined as 'using imaginative approaches to make learning more interesting and effective' (Craft, 89) and *teaching for creativity* involves *teaching creatively* (Craft, 90) and notes that, "young people's creative abilities are most likely to be developed in an atmosphere in which the teacher's creative abilities are properly engaged" (Craft, 90).

There is a great deal of research and conceptual analysis, on an architectural education parallel to the researches and developments on educational field, which has explored aspects of pedagogical approaches which foster pupil creativity around the world especially on USA. (Torrance, 1984; Shallcross, 1981; Kessler, 2000; Hubbard, 1996, Halliwell, 1993; Fryer, 1996; Edwards and Springate, 1995; Craft, 2000; Beetlestone, 1998; Balke, 1997). However, none of these studies has, examined the relationship between these two facets of creativity not only in the university, but also on architectural education.

2. Methodology

The data, which was drawn upon by Jeffrey and Craft (2004) comes from a research of 1971 and is now internationally famous with reciprocal connections with schools in Sweden, relations with communities in Gambia and the recently retired head teacher has lectured in the United States and recently visited China.

On their example, data collection was through qualitative methods, consisting chiefly of interviews with teachers, support workers, students and families. The research focused on the learners' experience of creative teaching in general, focusing on their perspectives, recorded through extensive field notes. Relevant documentation was collected such as governors' and inspectors' reports, timetables, and test results. Photographs were used

extensively as data and as stimuli for exploring children's[†] perspectives. At one stage, students were given cameras to select their own observations for discussion. By comparing the various different kinds of data, both within and across cases, we were able to identify prominent issues and themes connected to the major subject of creativity in education and the effect this had on the various participants.

Thus, a kind of similar method was used on upper-graduate students. Each student selected a problematic of World Contemporary Architecture to discuss the important styles and examples of architecture on a contemporary agenda. The group of upper-graduate students, which were taking the lecture of Contemporary World Architecture, were asked to create a documentary movie by not only preparing the scenario, but also by creating and selecting the imaginary data from internet and on digital programs, as well.

3. Teaching Creatively And Teaching For Creativity

The relationship between *teaching creatively* and *teaching for creativity* can be seen by using a framework based on Woods' (1990) features of creative teaching - relevance, ownership, control and innovation.

3.1. Teaching Creatively

According to NACCCE (1999) report, imaginative approaches should be used to make learning interesting and effective during the semester for teaching creatively. A major effect for students was an immediate experience of the dynamic, appreciative, captivating and caring ethos (Jeffrey and Woods, 2003). The construction of this type of ethos has many 4 objectives but in terms of teaching and learning one of the school's major aims was to make the learning experience relevant to learners, to make it interesting. According to Jeffrey and Craft for students this meant an ethos that was dynamic and active:

Learners appreciated the qualitative aspects of each focus of learning. Thus, history learning is also made exciting, literacy experienced as a whole range of delights and emotional journeys through history, and architecture is developed as a passion for designing, discovery and experimentation are felt during the process of technology provided intensely focused activity involving, frustration and satisfaction and the arts were valued as opportunities for expression, as well.

During the students are formulating their curriculums, the knowledge to be investigated on the process and the contexts in which not only teaching and learning took place, but also personal creativity was tired to be pushed up to set a framework for creative engagement.

The group experienced the process between lectures as adventures just on the example of Jeffrey and Craft. The lecture's '*hands on*' approach was a paramount feature of making learning relevant and encouraging ownership:

The group was told the story of how the practice of 'making a movie and discussed the ideas on it' developed - the setting up the parish boundaries on the upper graduate students.

[†] The group of students are from priliminary school, which were selected as group members on Jeffrey and Craft's example).

The instructor and the assistant of the lecture prioritised strategies that engaged the learner[‡] and they acted creatively to adapt the strategies to the appropriate age range, context and individual. The focus was on the professional relevance of the lecture to the architectural background of the student, which was to be learnt or experienced during 15 weeks long semester. This is related with the exemplified the description of teaching creatively which was given by NACCCE, in 1999.

3.2. Teaching For Creativity

The instructor also enacted those *teaching for creativity* principles according to (NACCCE, 1999), as follows: encouraging the group to believe in their creative identity; identifying the group creative abilities not only architecturally, but also related with art; fostering creativity by developing some of the common capacities and sensitivities of creativity such as curiosity, recognising and becoming more knowledgeable about the creative processes that help foster creativity development and providing opportunities to be creative. This was done by firstly having 4 weeks long teaching of the history of Ottoman architecture and encouraging ownership of learning and then by passing back control to the learner and encouraging by making students' own movies as innovative contributions. Control of learning by a young person is not a new experience (Pollard 1996). Being on this process is an opportunity to have ideas, which are innovative and expressive.

One of the major characteristics of creativity itself is, as craft argue on 2002 possibility thinking (Craft, 2002) and it was referred also that it was used at the education in technology-based activities on the group of upper-graduate students such as on this example, movie making to encourage the group to take control and act innovatively, as well.

According to Wood and Jeffrey (1996), the group experience and imagination would be a major part of the process of investigating knowledge using such devices as possibility knowledge (Woods and Jeffrey, 1996) and possibility thinking (Craft, 2002) and according to Lucas (2001), as well. *Teaching for creativity* could involve generating 'learner inclusive' pedagogy, according to Jeffrey and Craft where the learner is encouraged to engage in identifying and exploring knowledge. This idea is tried to develop further here, on this selected group of upper-graduate architecture students (Craft and Jeffrey, in press; Craft, 2003).

3. Content And Context Of The Lecture

The 15 weeks long semester had 5 different educational phases,

1. Speaking about the theorem of *Simulacr and Simulation* by Jean Baudrillard to discuss the World Contemporary Architecture and the affects that the World Contemporary Architecture is under effected by, such as neo-liberal economies, globalisation, bureaucratically changes on all around the World, and etc. for the first 4 weeks as discussing the most important architectural examples of famous architects such as Toyo Ito, Jean Nouvel, Oscar Neimeyer, etc.

[‡] Here, upper-graduate students.

2. Defining a problematic of World Contemporary Architecture, (students chose titles mostly of the European Architecture; a group chose an important partnership of architecture field, Renzo Piano and Richard Rogers; two students chose titles from Japan geography; one student chose a title from Brazil; one chose an architect of East; one chose an architectural style; and one other chose a title of an interior design)

3. Having 2 seminars about movie making digital programs, and presenting three reference books about scenery writing and movie making - (Scenery Writing by Miller, W.(2009); Making of Movie by Worthington, C.(2011); Scenery Writing by Marland, J., Richards, J. (2012)).

Speaking of scenery writing,

Speaking of selecting of images,

Speaking of selecting of music,

4. Creating of documentary movies,

Writing of the scenery of the documentary movie,

Defining chapters of the movie,

Choosing of the images related with the chapters,

Adding of the voice which reads the research documentation of the movie,

Adding of the right music piece with the right tempo and the mood to the documentary movie,

5. Making presentations on the auditorium,

6. Discussions of each presentation.

The presentations of the semester are listed below:

BIG (An important architectural office of Denmark),

Toyo Ito (An important Japan architect),

Jean Nouvel (An important French architect of De-constructivism),

Deconstructivism (An important architectural style of 1980's world),

Norman Foster (An important architect of today's De-constructivism),

Karim Rasid (one of the famous interior designer of the world),

Oscar Neimeyer (A Brazilian Architect of 1970's),

Santiago Calatrava (The important and famous architect of Spain by his creations as if from outer space),

Renzo Piano-Richard Rogers (A partner group of 1980's),

Zaha Hadid (The important woman architect of De-constructivism Architectural Style)

Rem Koolhaas (The important and famous architect of Holland by his de-constructivist projects),

Richard Meyer (The famous architect of 1980's)

Daniel Libeskind (The important and famous architect of Deconstructivism Architectural Style)

Kisho Kurokawa (An important Japan architect of 1980's),

Hasan Fethi (An important modernist architect of East).

5. Movies And Discussions

Three best presentations amongst all are as follows:

1. Deconstructivism (An important architectural style of 1980's world),
2. Kisho Kurokawa (An important Japan architect of 1980's),
3. BIG (An important architectural office of Denmark),

5.1. *BIG*

(An important architectural office of Danimark),



Fig.1. A view of Denmark office of BIG.

The one hour long movie of BIG consists of multiple fractions of videos from BIG archives used as office advertisement that shows dominantly Bjarke Ingels, former of BIG Architecture Office, when he talks about their projects with well-made animations. Since Bjarke Ingels tells continually about their projects and design methods, moviemaker tries to balance the video with views from realized projects with music at the background. The movie shows office videos always from their own perspective without canalizing the viewer's thoughts. The moviemaker only expresses his own thoughts in his report of movie as, "There are many thoughts about scale issue; the general approach is that scale is not focused on human scale. When looking to that issue, I do not think that this problem can be only about Bjarke, it is a general problem of today."

5.2. Deconstructivism

(An important architectural style of 1980's world):

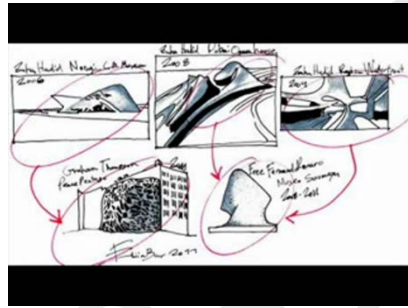


Fig.2. A group of de-constructivist drawings.

The movie starts with telling about the background of Deconstruction Movement with an illustration showing the names of the architects that were part of it. After that movie shows a part of the film Deconstructivist Architects including conversations with architects. It goes on by showing projects images and drawings with the narrators voice talking about each project. Then, a part from a film about Zaha Hadid is shown with shootings of the projects from interior and exterior. The narrator ends the movie by saying "Humanbeing has fight with nature for hundreds of years and now it needs to experience new existences over knowledge. For that reason it can be seen that deconstructivist projects are really important."

5.3. Kisho Kurokawa

(An important Japan architect of 1980's),



Fig.3. A scene that shows Kisho Krukawa is telling his architectural background on the design of Nagakin Capsule Tower.

The movie starts with the scenes from 1960's student movements and then it goes on showing the architecture movement Archigram from England and its followers from Japan forming the group Metabolism Movement. After showing several utopic project drawings of the groups, movie starts to focus on the architect Kisho Kurukawa. The narrator talks about the projects of Kurukawa to let the viewer understand the projects through the drawings and schemes. On the next scenes the fragments of the movie, At the Nagakin Capsule Tower: Demolition and Preservation, is shown and in between scenes the narrator gives further information about the project.

6. Conclusion

Among multiple benefits of the movie making process some that stand out are: (1) students participated in searching a problematic of World Contemporary Architecture, (2) students learned to work on an estimated time period, (3) students familiarized themselves with digital movie making programs while thinking on history of architecture and contemporary buildings and styles, (4) students learned to appreciate different point of views on the time period of world history, (5) students were able to visualize their ideas to discuss on a group with using of a new medium, movie making (6) students learned 3 important movie making digital programs.

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4th International Conference on New Horizons in Education

Learning Lessons on Location

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Abstract

Teacher training is more important than ever with high expectations by schools and society. This paper describes how two University professors provide training at elementary school sites for teacher candidates that integrates theory and practice. The focus is on developing passionate, engaging, knowledgeable, and well-trained teachers that are prepared for the realities of professional teaching.

Keywords: Teacher Education; transfer, fieldwork.

1. Background

This paper provides an overview of two teacher education professors' experiences while preparing teacher candidates for the elementary classroom. Our days as classroom teachers and reading specialists contributed to our present desire to make a difference in the lives of children through teacher training at the university level. With today's pressure on teachers to increase academic achievement for all students, quality teacher training is more important than ever.

We are committed to do what we can, so that all children will become proficient readers and writers to ensure their success in society. Our role is to provide quality training, with teacher candidates leaving our Multiple Subjects Credential Program well prepared to respond expertly to this challenge.

As we instruct teacher candidates, our challenge is to assist them in applying the learning from coursework to practice with children. In order to prepare our future teachers for the challenges of teaching, we have provided a unique experience in our literacy methods course that bridges the gap between theory and practice.

2. Introduction

Fieldwork has been found to be the most powerful learning experience for teacher candidates. In their teacher preparation program, Weisenberg, Won, & Roe (2010), found that there was a "mismatch" between what was learned during coursework and what occurred during student teaching. Many students were unable to apply what they had learned during their coursework to their fieldwork. Darling-Hammond and Bransford (2005) found that teacher candidates who learned theory concurrent with fieldwork opportunities were better prepared to see the

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match between theory and practice. The Blue Ribbon Panel's 2010 report urged, "We must place practice at the center of teaching preparation" (p. 3).

The heart of instructional reform is for teachers to be able to transfer instructional understandings gained from professional development opportunities into classroom practices that foster increased student achievement (Lyons and Pinnell, 2001). The authors believed that this could also apply to teacher credential programs. Candidates' ability to transfer learning from their coursework to their fieldwork would foster student learning and help them be more successful in the classroom.

Darling-Hammond (2006) found that the most powerful teacher preparation programs included more fieldwork time throughout the program that simultaneously had candidates learning and applying strategies. She reported that research confirmed that "teachers-in-training who participate in fieldwork with course work are better able to understand theory, to apply concepts they are learning their course work and support student learning" (p. 307).

Levine's Educating School Teachers (2006) report was a wake up call for teacher preparation programs. His extensive study surveyed alumni and principals across the nation and revealed that sixty-two percent of alumni did not believe their teacher preparation program prepared them for the real classroom, their administrators corroborated this. "Many students seem to be graduating from teacher education programs without the skills and knowledge they need to be effective teachers" (p. 3).

Kagan (1992) cites that lack of transfer from teacher candidate to professional teacher is the gap between theory and practice. Candidates learning about theory and then not seeing it demonstrated or having the opportunity to practice it was the problem. In order to alleviate this, we had to ensure that our students had ample opportunities to participate in their own learning and work with students, not just simulate their work with each other. Wlodkowski (2003) stated, "Unless adults participate, they cannot learn, and without learning there is no possibility for transfer" (p. 40). Wlodkowski (2003) perceived transfer as part of a logical triangle including participation, learning, and transfer to the classroom. This triangulation was what we sought for our methods courses.

Teacher education must shift "to programs that are grounded in clinical practice and interwoven with academic content and professional courses" (p. ii, Blue Ribbon Panel, 2010). Aspiring teachers will be most successful when they are learning about theory and pedagogy and putting into practice what they learn immediately. At our University methods courses typically emphasize coursework loosely linked to school-based experiences. We sought to find a way to more closely match these to produce better-prepared teachers.

The purpose of this study was to determine the impact that teaching methods courses at an elementary school site with simultaneous fieldwork opportunities would have on teacher candidates. The research questions guiding our exploration were:

1. Did the embedded fieldwork experience help the students with the transfer from theory to practice?
2. Did these experiences assist them in applying what they learned to their student teaching?

3. Method

A case study approach was used to determine the impact teaching a methods course at an elementary school site had on pre-service teachers ability to more closely match theory to practice.

3.1 Setting

Hollins and Guzman (2005) found that there was a great need for teaching candidates to have the opportunity to work with diverse learners. The school sites chosen for this research took that into consideration. Each of the school sites utilized offered a diverse population of students including English learners, multiple ethnicities, and special needs students.

3.2 Participants

The participants for this study were the credential candidates in each of the Reading Methods courses taught by the authors. The Multiple Subjects Credential Program (MSCP) at our university is designed as a one-year program in teacher education. Like many other K-8 credential programs, our pre-service teachers take four methodology courses: reading; mathematics; social studies and visual and performing arts; and science and health. Additional courses include: technology, educational foundations, multicultural education, and special education. In order to apply for their preliminary credential, they must maintain a 3.0 GPA and receive no grade lower than a "C" in any course or assignment. They must also pass the Reading Instruction Competence Assessment (RICA) and all four tasks of the California Teacher Performance Assessment (CA TPA). In these tasks, pre-service teachers must demonstrate their understanding and application of lesson planning, assessment, reflection, and instructional accommodations for focus students such as the English Language Learner and students with other special needs. The knowledge and skills needed for these tasks are aligned with the objectives and goals throughout their various credential courses and the Teacher Performance Expectations (TPEs).

After successful completion of the four methods courses, most pre-service teachers commence a full-time student teaching placement for 16 weeks. They are placed in student teaching assignments and are evaluated regularly by their university supervisor and their cooperating teacher. Student teachers are observed a minimum of 8 times by a university supervisor, with two formative assessments and a summative assessment at the end of the semester. A classroom management course is taken during the student teaching semester.

3.3 Process

The primary purpose of the Multiple Subject Credential Program (MSCP) at our University is to prepare future teachers to work effectively with students from diverse backgrounds and to implement pedagogy that values the backgrounds of all students and allows them to succeed to their ultimate potential. The MSCP is a fairly short, fast-paced program. One can complete coursework, including student teaching, and be eligible for a preliminary credential in one year. This schedule leaves little time to make sure that the theory learned in methods courses transfers to applications in the classroom (student teaching).

Each methods course in the MSCP requires a number of fieldwork hours, but there is not a standard way of implementing these hours. Most fieldwork done by the students is done on their own time, at locations of their choice, with no opportunity for the instructor of the methods course to observe or provide feedback. The main fieldwork component of the program is done during student teaching and is usually cited as the most important feature of the program.

In response to the concerns we had with the lack of transfer from theory to practice, we both approached different principals at neighboring elementary schools. These principals supported our request to have our

weekly university literacy methods course on their school campus. In return, we would provide weekly instruction for challenged readers and writers. For the past few years, our literacy methods courses have met weekly on an elementary school campus for five hours of instruction. We model primary and intermediate lessons for our new teacher candidates to observe, and these university students plan for and then teach small groups of students for 45 minutes to an hour of our class sessions. These aspiring teachers plan and deliver a reading or writing lesson each week as we observe, coach, and give feedback. These observations assist us in determining what the needs are for our next training session together.

When the university students return to the classroom to debrief the lessons taught, it was fascinating to note the levels of learning they experienced. The conversations went down many paths, which included classroom management techniques, effective questioning strategies, the importance and skill in selecting quality materials, characteristics of excellent mentor texts, ways to engage all students in discussions, techniques for expanding language and vocabulary development, strategies for reaching English learners, ways to deepen comprehension, the power of “wait time,” and how to encourage productive and rich dialogue among the children. This debriefing time was powerful for self-reflection and growth for all in the group.

3.4 Data Sources

As a case study to inform our own practices we limited data sources to ones that would be collected as a part of the program. Our own observation notes during planning, teaching, and reflection were taken. We collected teachers’ written reflections after lessons were delivered, and End-of-program surveys completed by each teacher candidate were used. Comments from the back of formal course evaluations were also gathered. Data analysis included reading and coding comments into categories.

4. Results

There were three major themes that emerged from the data. Students found that having the methods courses on campus allowed them to apply theory to practice and helped them with transfer. It also allowed them to see the practical applications of what they were learning and then doing with the students. Finally, the feedback they received from both instructor and peers was powerful and assisted in their own self-reflection. Some quotes are used to illustrate each theme:

4.1 *Transfer from theory to practice*

"Really enjoyed working with students. Got to put to practice what we learned in the classroom. It was a great experience."

"Working with real live humans was very fun. It gave us a chance to apply our knowledge and what we learned."

4.2 *Practical applications*

"Working with real live children and knowledge that I can and will use in my own classroom".

"Interaction is the best tool to learn from".

"Working with the real live humans made the experience more meaningful and comprehensible when we were able to "experiment" what we had learned on children vs. just reading about it in a text book".

"There is no comparison to what I have learned from class and practicing it with children".

"Learning these concepts and tests abstractly would not have made as much of an impact on my learning".

4.3 *Feedback*

"I valued the peer and instructor feedback on lessons demonstrated".

"Being with the rest of the class and learning together and from each other has been very helpful".

"The feedback and constructive criticism received by peers and professor was paramount".

"Getting immediate feedback while the lessons were fresh helped in editing and rethinking the lessons".

Data from the MSCP end-of-program survey confirmed this positive impact of teaching the methods courses at an elementary school site. The Reading Methods courses were ranked highest of all MSCP courses. On the Teacher Candidates' Perceptions of Preparation for Teaching question, 96% of the students believed that they received excellent to good preparation from their Reading Methods course. The next highest course was 82%. In their comments they referred to the courses being taught at the elementary school sites and having fieldwork concurrent with theory as being the most effective way of learning. They attributed this opportunity in assisting them during their student teaching placement and making them more prepared and successful.

5. **Conclusion**

Teachers are the most critical factor in student achievement, far more powerful than class size, race, socioeconomic level, and classroom homogeneity (Allington, 2011). Our approach to instructing these aspiring teachers promotes the understanding that teaching children to read and write is complex and requires expertise. Children differ and teachers must be equipped to differentiate instruction to support their learning. Having the opportunity to match theory to practice is essential for this.

The challenge for us is to teach our students well enough that they have learned and applied theory and can recognize when their teaching is not working and improve upon it. These teacher candidates are fortunate to have the experiences described in this paper. Each week they observe us teach real kids, and they teach real kids as we and their peers observe. We have productive conversations about teaching and learning centered on these

shared experiences. Our hope is that they leave the university prepared for today's diverse classrooms and with the commitment to continue to seek further learning and become the expert literacy teachers their students deserve.

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Learning Objects for Numerical Analysis Courses

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Abstract

The “Virtual Laboratory of Numerical Analysis” is a collection of customized applications that let students work with all issues that are studied in different courses of Numerical Analysis at Facultad Regional San Nicolás from the Universidad Tecnológica Nacional of Argentina. As windows were developed to present a simple interface, easy to interpret and manipulate, there is no need of hard training to use these tools.

The aim of this paper is to show some of the visual tools that have been designed for working on the numerical solution of nonlinear equations, numerical integration and resolution of initial value problems.

Keywords: Learning Objects; Numerical Analysis; Scilab

1. Introduction

The “Virtual Laboratory of Numerical Analysis” of the FRSN (Facultad Regional San Nicolás) is a collection of customized applications developed by the authors in the software SCILAB, and covers all topics studied in Numerical Analysis’ courses. These tools were developed taking into consideration the students’ learning styles. This laboratory covers numerical methods for solving the following issues: nonlinear equations, systems of linear equations, systems of nonlinear equations, interpolation and curve fitting, numerical integration, ordinary differential equations and partial differential equations. When students use these tools for solving problems by different numerical methods, they have the advantage of analyzing the results directly, without having to program the code, at least at the beginning.

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As windows were developed to present a simple interface, easy to interpret and manipulate, there is no need of hard training for using these tools. This enables students to focus on mathematical concepts or skills that the professors want to deepen or highlight, without the need to master the software syntax used.

This laboratory has been enriched since its initial design in 2007, and is constantly evolving, taking into account the experience of its use with different groups of students. Initially the windows were designed in MAPLE. Currently all applications are developed using the free software SCILAB. All the tools that are part of this lab are available on the websites corresponding to the themes developed in the Numerical Analysis subjects held on the FRSN. It is possible to reach them by pressing the button **Resources** on the website of the research group, www.frsn.utn.edu.ar/gie.

The aim of this paper is to show some of the visual tools that have been designed for working on the numerical solution of nonlinear equations, numerical integration and resolution of initial value problems. It is assumed that the methods used in the different windows are known, and therefore their description is not included (Hoffman, 1992; LeVeque, 2007).

2. Learning Objects

The term learning object (LO) was introduced at the beginning of the '90. Although after that many authors have defined the concept in different ways, one of the first established and widespread definitions is given by Wiley (2000), who considers that a LO is “any digital resource that can be reused to support learning”. In order to ensure quality in the development of LO, a number of properties have been established. Learning objects should have the following characteristics (Naharro et al., 2007):

- **Digital Format:** LOs have the ability to constantly update and/or change. LOs are used from the Internet and accessible to many people simultaneously from different locations.
- **Educational Purpose:** The purpose of LOs is to ensure a successful learning process.
- **Interactive Content:** LOs involve interactive participation of each individual, teacher or student in the exchange of information. Thus, it is necessary that learning objects include activities (exercises, simulations, diagrams, videos, graphics, etc.) to ease the assimilation process and track the progress of each student.
- **Independent and indivisible:** LOs must make sense in themselves and be self-contained. Furthermore, LOs cannot be decomposed into smaller parts.
- **Reusable:** LOs must be able to be used in educational contexts other than that for which they were created. Reusability is the most important characteristic of learning objects.

The design of a LO is a challenge for teachers because, besides choosing the content, they should create the appropriate ways of presenting, depending on the characteristics and learning styles of the addressees.

3. Interfaces Description

The latest versions of commercial programs as MAPLE, MATHEMATICA and MATLAB offer the possibility to design custom graphical interfaces. Also with SCILAB, a free software, GUIs (Graphic User Interfaces) can be created. These windows applications allow using the calculation and graphing power of the available software in a friendly way, without worrying about the commands needed to get the solution of the proposed tasks.

In this way, students can not only focus their attention on the object under study but, through visualization using the windows, they can compare the methods studied, analyze advantages and disadvantages, discover

mathematical concepts and conjecture generalizations. That is, students would develop and promote a different kind of mathematical thinking.

The current “Virtual Laboratory of Numerical Analysis” is a collection of SCILAB GUIs. SCILAB is a free software, available from www.scilab.org, with an environment similar to MATLAB that was developed in 1990 by researchers from INRIA (Institut National de Recherche en Informatique et en Automatique) and ENPC (Ecole Nationale des Ponts et Chaussées). Today is maintained and developed by a consortium created in 2003.

3.1. Nonlinear equations

In Figure 1 the application designed to work with nonlinear equations is shown (Caligaris et al, 2010). It presents the four methods that are studied in the course to achieve the approximation of a root of these equations: bisection, Newton, secant and false position.

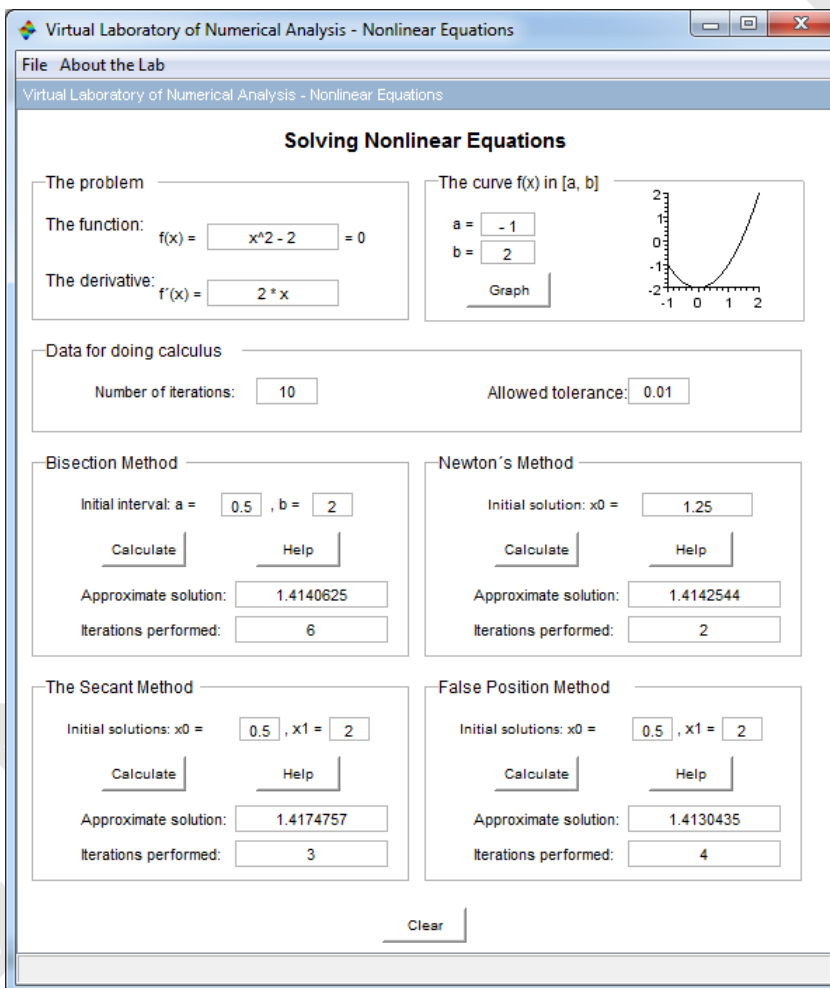


Fig. 1. Application for resolution of nonlinear equations

It should be mentioned that SCILAB does not calculate derivatives symbolically, so the expression involving the first derivative of the function associated with the equation must be loaded. Also, the desired tolerance and maximum number of iterations must be determined.

All methods require one or two initial data for execution, as it can be seen in Figure 1. These can be estimated by the graphical, using with the **Graph** button in an appropriate interval.

Results of each method may be obtained by entering the required data, and then clicking on the **Calculate** button. The approximation obtained and the number of iterations performed will be shown, if the conditions for each method are accomplished. Otherwise, an error message is returned. Besides, if the maximum number of iterations or the allowed tolerance is taken and the desired approximation is not reached, an alert message appears informing the user to increase the number of iterations or decrease the allowed tolerance.

3.2. Numerical integration

Figure 2 shows the application designed for working with numerical integration (Caligaris et al, 2012). It presents the four methods that are studied in the courses to achieve an approximation of a definite integral. To use this interface, the corresponding function, the integration interval and the number of subintervals or points, as required, to be considered in each method must be entered. By pressing **Calculate**, each of the approximations is shown. Also, using the **Graph** button, the graph of the function, in the specified range, is displayed.

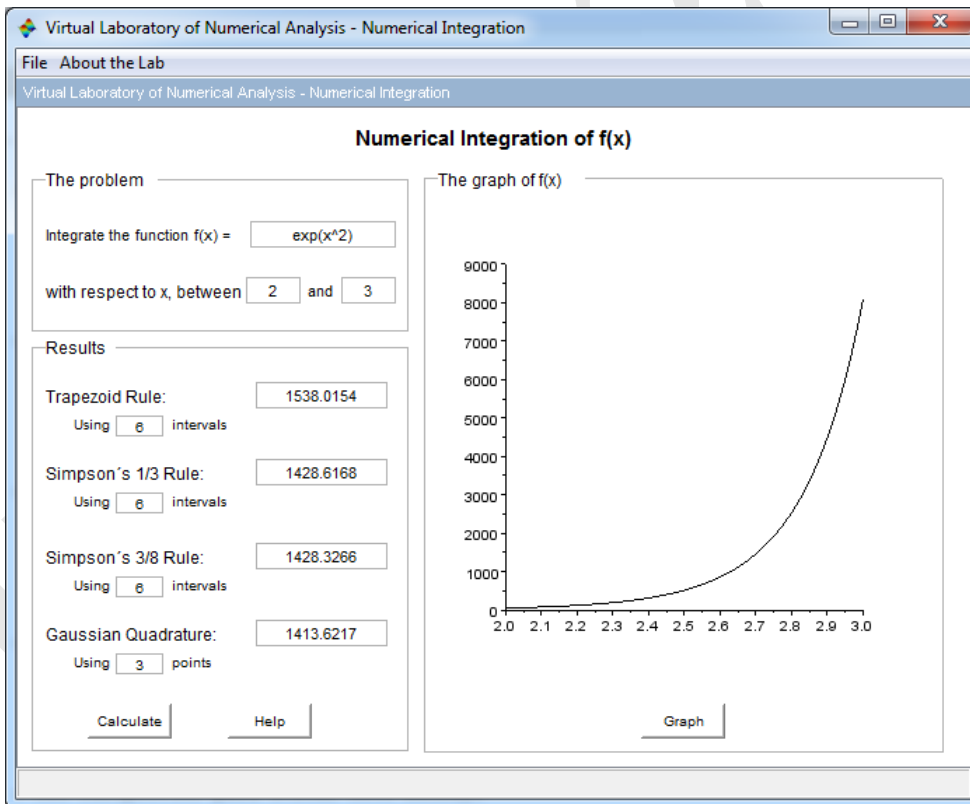


Fig. 2. Application for numerical integration

3.3. Initial value problems

To solve Initial Value Problems (IVP) some different interfaces were developed, each one pointing at specific issues. The corresponding applications are:

- **Initial Value Problems: One-step Methods.** It allows to solve first and second order IVP, using the following methods: Euler and Runge-Kutta of second order and of fourth order. (Caligaris et al., 2011).
- **Initial Value Problems: Multipoint Methods.** Also first and second order IVP can be solved here, using Adams-Bashforth or Adams-Bashforth-Moulton methods.
- **Systems of First Order Initial Value Problems.** It solves first order IVP systems with one-step methods.
- **Initial Value Problems: Error Analysis.** It shows, both in tables and graphs, the local and global truncation errors in Euler and Runge-Kutta methods.

Figure 3 shows the interface corresponding to multipoint methods. The interface corresponding to one step methods is very similar to this one. Only the proposed methods change.

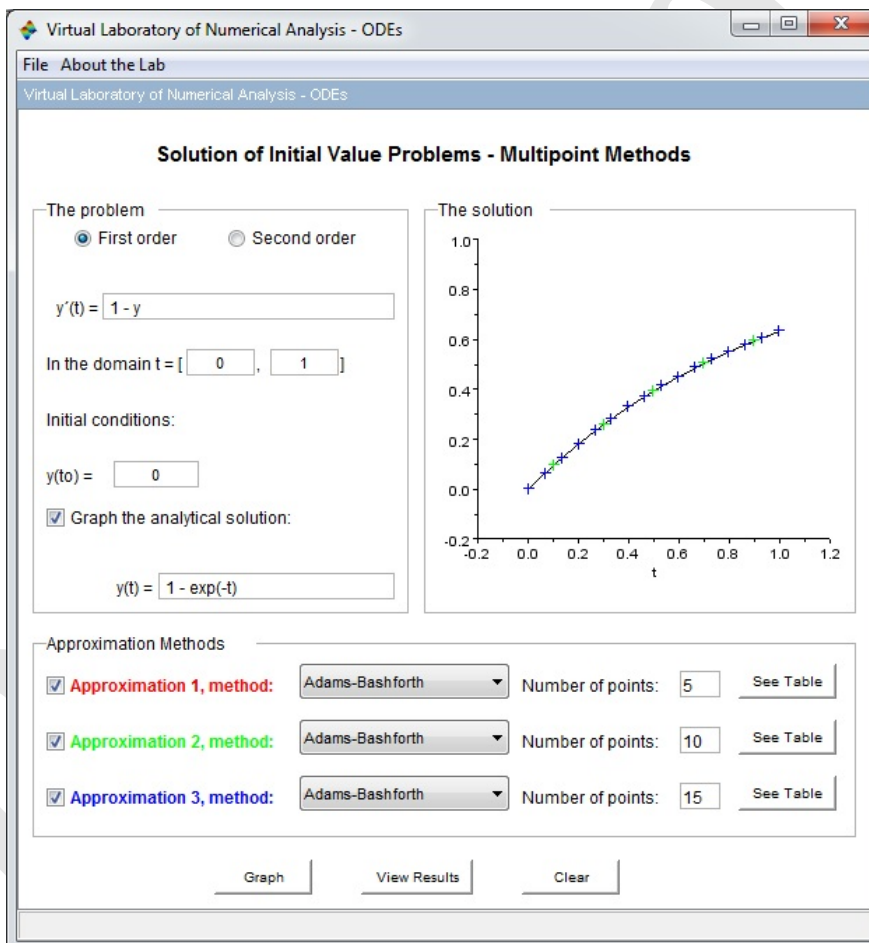


Fig. 3. Initial Value Problems: Application for multipoint methods

To obtain an approximate solution of a particular IVP in the window shown in Figure 3, the order of the problem to be solved must be indicated at first, by choosing the appropriate radio button. This will enable the fields needed to load the problem data, according to its type: the coefficients of the equation, the initial conditions and the range where the solution will be obtained. It is possible to enter the law of exact solution of the IVP -if it is known or it can be obtained- to make comparisons and analyze errors.

A list (t_i, y_i, w_i) or (t_i, w_i) -whether analytical solution of the problem is known or not- for each method will be obtained by pressing the corresponding **See Table** button. In this case, w_i corresponds to the approximate value of the solution at the point t_i , and y_i is the value of the analytical solution at the point t_i . These data are displayed in a new window, with a format similar to a spreadsheet. To compare results obtained by different methods, for common abscissa points, the **View Results** buttons can be used.

The interface corresponding to systems of first order IVP is shown in Figure 4. At the bottom of any of the mentioned windows, up to three options for performing simultaneous approximations can be selected.

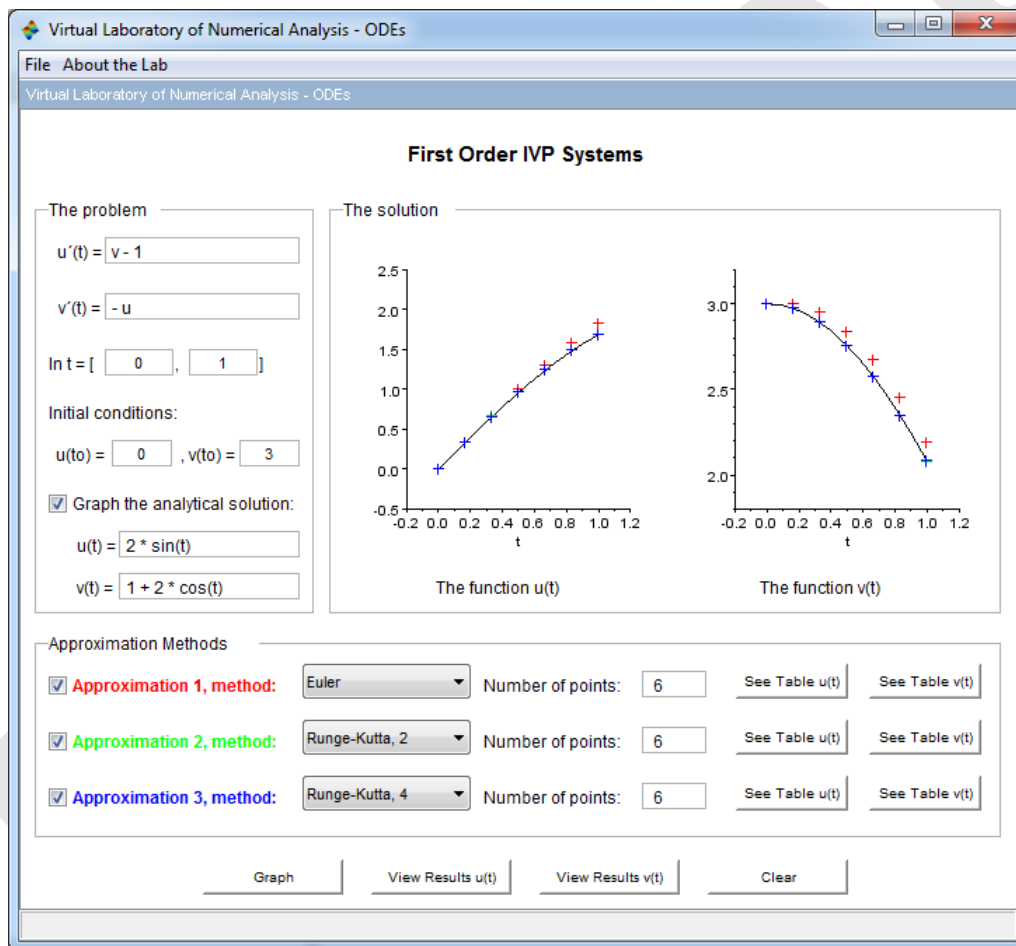


Fig. 4. Application for systems of first order initial value problems

Each of the windows mentioned above allows the user to choose a method from a drop down list, and the number of points where the solution will be computed. In these windows it is possible to choose applying the same method with different steps (Fig. 3), or different methods with equal (Fig. 4) or different steps. By pressing **Graph**, a chart for the unique solution in the window in Figure 3 in the variables (t, y), will be obtained in the "solution" sector, showing the points corresponding to the different approximations, in different colors, as indicated at the bottom of the window.

When solving a first order system of IVP with the window shown in Figure 4, two approximate solutions are obtained. The values of each solution at the points of the net, for each of the methods selected, can be obtained by pressing the corresponding buttons **View Result** for each solution. The list of values obtained is shown in two spreadsheets as shown in Figure 5.

	1	2	3	4	5
1	ti	u(t)	Euler (n = 6)	R-K, 2 (n = 6)	R-K, 4 (n = 6)
2	0	0	0	0	0
3	0.1666667	0.3317923	0.3333333	0.3333333	0.3317901
4	0.3333333	0.6543894	0.6666667	0.6574074	0.6543852
5	0.5	0.9588511	0.9907407	0.9631559	0.9588451
6	0.6666667	1.2367396	1.2962963	1.2420232	1.2367322
7	0.8333333	1.4803537	1.5743313	1.4862041	1.4803455
8	1	1.682942	1.816358	1.6888619	1.6829336

	1	2	3	4	5
1	ti	v(t)	Euler (n = 6)	R-K, 2 (n = 6)	R-K, 4 (n = 6)
2	0	3	3	3	3
3	0.1666667	2.9722865	3	2.9722222	2.9722865
4	0.3333333	2.8899139	2.9444444	2.8892747	2.8899147
5	0.5	2.7551651	2.8333333	2.7534669	2.7551674
6	0.6666667	2.5717745	2.6682099	2.5685872	2.5717788
7	0.8333333	2.3448245	2.4521605	2.3397974	2.3448313
8	1	2.0806046	2.1897719	2.0734884	2.0806144

Fig. 5. Results for each function in example of Figure 4

4. Use of the tools in the classroom

Since its creation the different tools that constitute the "Virtual Laboratory of Numerical Analysis" have been used in Numerical Analysis courses in the Facultad Regional San Nicolás and have been well received by students.

The use of these tools, both in lectures and practical classes, can generate new learning spaces, which promote interactive engagement of students with the content of the laboratory, thus enabling understanding and learning of the issues involved. Usually different examples, properly selected, are shown so students can easily understand certain concepts as well as analyze the advantages and disadvantages of each of the numerical methods. The teacher's role in this context is to provide, through the design of teaching sequences, a meeting between the student and the environment for the emergence of knowledge; it is in the interaction and experimentation when the student understands deeply the concept to be taught.

5. Conclusions

Any professor interested in the learning process of the students must recognize when difficulties arise in teaching. By studying the learning style of students, good basis for developing teaching strategies in line with the habits of the students is obtained. Based on the study in Numerical Analysis courses at Facultad Regional San Nicolás, visual applications like those shown here were developed to let students interact in the process of incorporation of numerical methods, allowing them to analyze results instead of wasting time with tedious calculations. Therefore, the authors consider the design of teaching sequences supported by these tools is an alternative for students to build a comprehensive and meaningful learning, managing to interest students in order that they can find meaning and taste the experience of learning and actively participate in the process of acquiring knowledge.

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4th International Conference on New Horizons in Education

Learning styles in physics education: introduction of our research tools and design

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Abstract

In this contribution we summarize the main approaches to learning styles and their definition. We clarify the characteristics of the learning style and several related terms (learning strategy, cognitive style, etc.). We also present characteristics of some existing tools for learning styles research, such as MSLQ or LSI questionnaires. We specify the dimensions these tools focus on and we illustrate the differences between them with several examples of actual items. We introduce the design of our scheduled research in physics education field.

Keywords: learning styles; physics education; LSI; MSLQ

1. Introduction

The theory of learning styles maps the differences in how the pupils learn new things. It has been discussed mostly in pedagogy and didactics of arts yet and we find it important to concern with this topic also in natural sciences because learning of natural sciences may include its particular specificities. (Marin-Suarez & Alarcon, 2010) We suppose it would be beneficial to find out if there is some learning style preferable in learning physics. It could allow teachers to follow the recent trend to respect the different needs of individual pupils and to choose appropriate methodical tools and provide good physics learning environment to different types of students. Moreover including learning styles in physics education is also chance to improve the educational process of this subject and to increase the motivation of pupils to learn physics.

2. Theoretical framework

Several different approaches to learning styles and their definition can be found in the literature because of a large number of researchers in the area of learning styles, especially in psychology and pedagogy. These approaches differ in a number of topological variables. There exists a variety of definitions, interpretations and models related to this topic. To illustrate this ambiguity we introduce some of the learning styles models and classifications and then we set the boundaries of our own research.

2.1. Learning style models

The plurality of learning style models is evident from several overviews such as Cassidy (2004) or Hartley (1998). There are different aspects and processes involved in the definition of learning style depending on

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the author of the appropriate model. We introduce the best known learning style models and clarify the aspects they focus on.

2.1.1. Curry's Onion model

Curry (1983) uses an onion as a metaphor to illustrate inner and outer layers of the learning style. There are three main layers included in this model (see Figure 1):

- Instructional preference layer
- Information processing style layer
- Cognitive style layer

The instructional preference layer refers to individual's preferred choice of learning environment, which includes items such as furniture, noise, presence of other pupils etc. This layer is the best observable one.

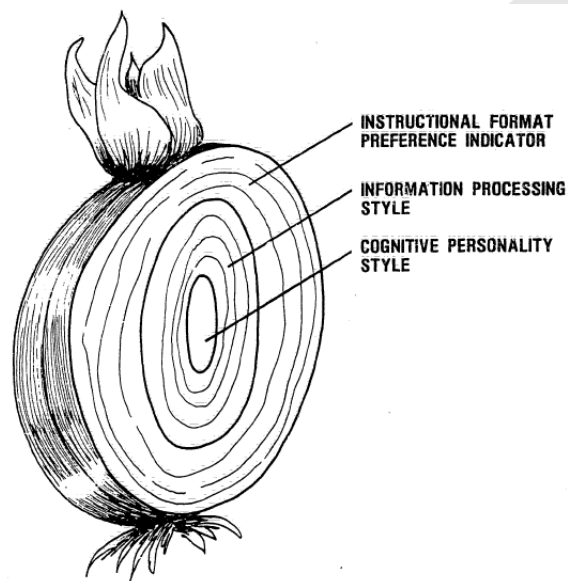


Fig. 1. Curry's Onion model. (Curry, 1983)

The second layer, information processing style, includes the individual's intellectual approach to the processing of information.

The most robust layer is the inner one. The cognitive style is a relatively permanent dimension and it is apparent only when the pupil is observed across more different learning situations.

In spite of the real onion these three layers are not independent but they are connected and able to communicate with each other.

2.1.2. Marshall's Topological model

This learning style model is similar to the Curry's one but there are some more variables added.

Fig. 2 that is translated from Mareš (1998) shows a scheme which illustrates this model. Three layers known from Curry's model are supplemented by other characteristics. For each layer there is its relation to the learning process expressed and also its stability volume which means how suggestible that particular layer is. According to this learning style model the inner cognitive layer is fixed and stable and it is also resistant to the persue of teachers and couchs or instructors. (Marshall, 1987)

2.1.3. Kolb's Experiential learning model

Kolb's learning styles model is based on the comprehensive theory of learning and development where the main source of individual's learning and development is experience. (Kolb, 1981)

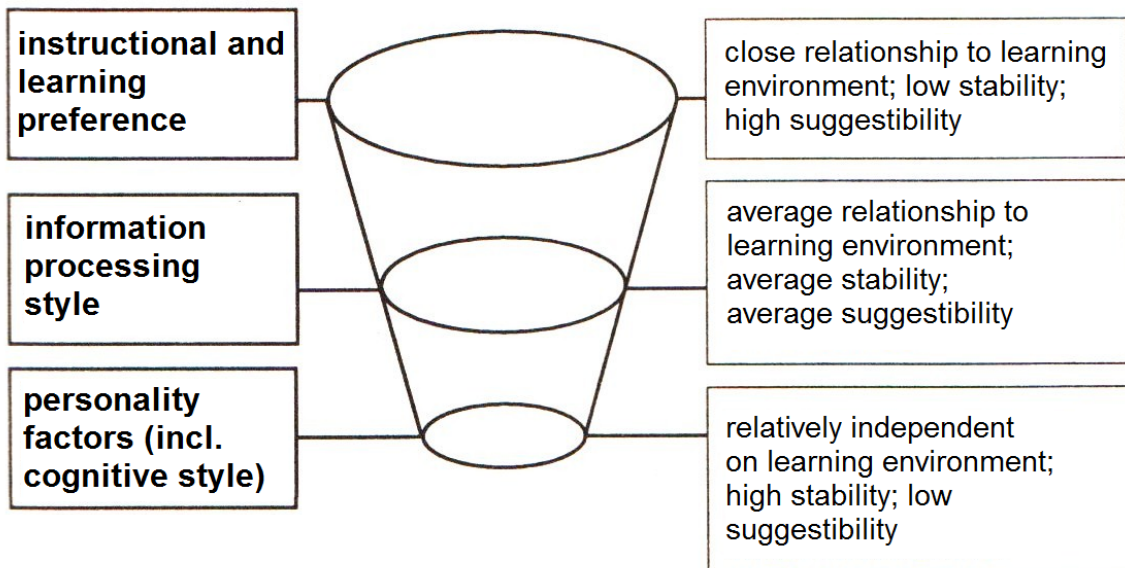


Fig. 2. Marshall's Topological model. Translated from Mareš (1998).

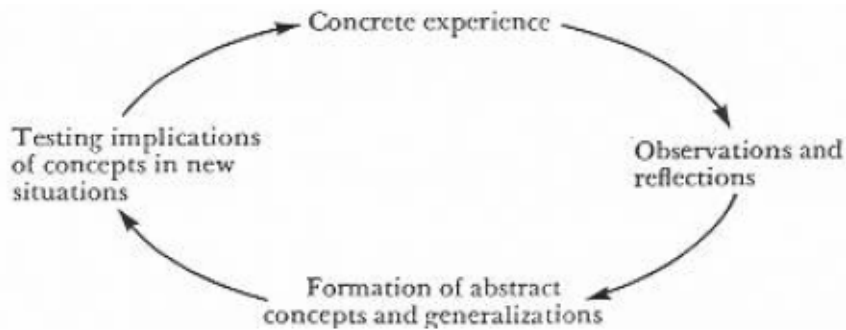


Fig. 3. Kolb's Experiential learning model. (Kolb, 1981)

Due to this model individual differences in learning are based on the learner's preference for employing different phases of the learning cycle that is illustrated by the Fig. 3. There are four learning styles according to the Kolb's learning style model:

- Diverging: combines preferences for experiencing and reflecting
- Assimilating: combines preferences for reflecting and thinking
- Converging: combines preferences for thinking and doing
- Accommodating: combines preferences for doing and experiencing

2.2. Learning style classifications

There are many classification systems of learning styles. Some of them are based on neurological and neuropsychological research, others describe the ways how individuals perceive, organise and process the information. We summarize the best known systems:

- The four-modalities classification: visual, auditory, kinaesthetic and tactile learners.
- Ambiguity in/tolerance classification: describes how learners work with some informations that disagree with their existing knowledge and concepts.
- Field-dependency classification: field-independent learners perceive the components of the task separated from the field while field-dependent do not.
- Classification based on hemispheric dominance: left-brain and right-brain dominated learners, where left hemisphere is considered to be the centre of analytical, logical and systematic processes, while the right hemisphere is said to be rather holistic, intuitive and imaginative.
- Classification based on approach to finding solutions of the problem: impulsive/reflective learners.

2.3. Key terms definitions

The variety of learning style models and the ambiguity of related definitions of the learning style affect definitions of other terms used in learning styles research. For our own research especially the terms "learning style" and "cognitive style" are important. For this purpose we focus on their delimitation. The two mentioned terms are really close to each other and there are four main possibilities of their relation. According to Curry (1983), James & Gardner (1995), Dunn, Dunn and Price (1995) and also Mareš (1998) we accept the idea that the concept of learning style is wider and that it exceeds cognition. Cognitive style is only one part of learning style then. This idea is illustrated by the Figure 4.

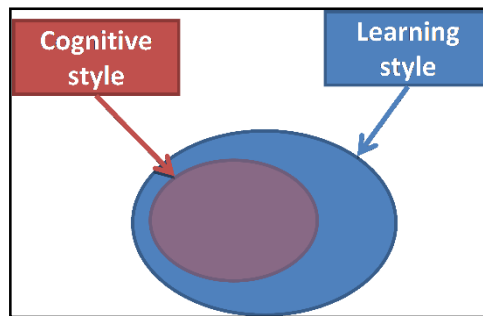


Fig. 4. Relation between learning style and cognitive style in our research.

We understand cognitive style as a mostly inborn and only hardly suggestible part of learning style. Some other specific differences between these two terms are shown in Table 1.

Table 1. Learning style and cognitive style comparison. Translated from (Mareš, 1998).

	Cognitive Style	Learning Style
Origin	mostly inborn	mostly obtained
Activation	mostly spontaneous	initially spont., later conscious
Content dependency	minimal	stronger
Situation dependency	average	strong
Outer suggestibility	little	potentially strong
Inner suggestibility	little	potentially strong

There are several definitions of the term “learning style” itself. They are usually bounded on some learning style model. Some authors define learning styles as the ways or predispositions of approaching different tasks, others describe them rather as a complex manner that includes also conditions such as the learning environment. (Sarasin, 1998; Hartley, 1998; James & Gardner, 1995). Hereafter and for the purpose of our research the learning style is read as a characteristic that has a number of components and is defined according to Keefe as: “the composite of characteristic cognitive, affective and physiological factors that serve as relatively stable indicators of how a learner perceives, interacts with, and responds to the learning environment.”(Keefe, 1982)

Cognitive style is then the term that we use for fairly fixed characteristic of an individual to describe his/her typical or habitual mode of problem solving, thinking, perceiving and remembering. We incline to Riding, Glass and Douglas, who define cognitive styles as “static and relatively in-built features of the individual”. (Riding & Glass & Douglas, 1993)

We also distinguish “learning strategy” in our terminology as a strategy that students adopt while studying. Learning strategy means some particular method. It is an obtained behaviour of how the learner approaches the

task. In accordance with Hartley (1998): “Different strategies can be selected by learners to deal with different tasks. Learning styles might be more automatic than learning strategies which are optional.”

On the basis of the previous definitions learning style is a predisposition to create and/or adopt some learning strategies and to incline to some methods and processes.

3. Diagnostics of learning styles

Measuring the characteristics of learning styles and the learning styles diagnostics is a sophisticated process because of the complexity of this issue (many variables that are hardly controlled). Various qualitative and quantitative methods such as observation, interview or questionnaire are used by psychologists in the learning styles research.

For the purpose of our research we choose to diagnose learning styles by a learning styles questionnaire. We consider it advantageous because of the complex nature of obtained data and because there is a variety of questionnaires the validity and reliability of which was tested and studied thoroughly.

3.1. Learning Styles Inventory (LSI)

The LSI questionnaire was developed by R. Dunn, K. Dunn and Price. The authors of this tool define learning style as: “The way in which each learner begins to concentrate, process and retain new and difficult information. That interaction occurs differently for everyone.” (Dunn & Dunn & Price, 1995)

In consistency with this definition each individual’s strengths and preferences are identified across the full spectrum of twenty elements that are grouped into five categories: environmental, emotional, sociological, physiological and psychological stimuli. These elements and categories are visualized by scheme in Figure 5.

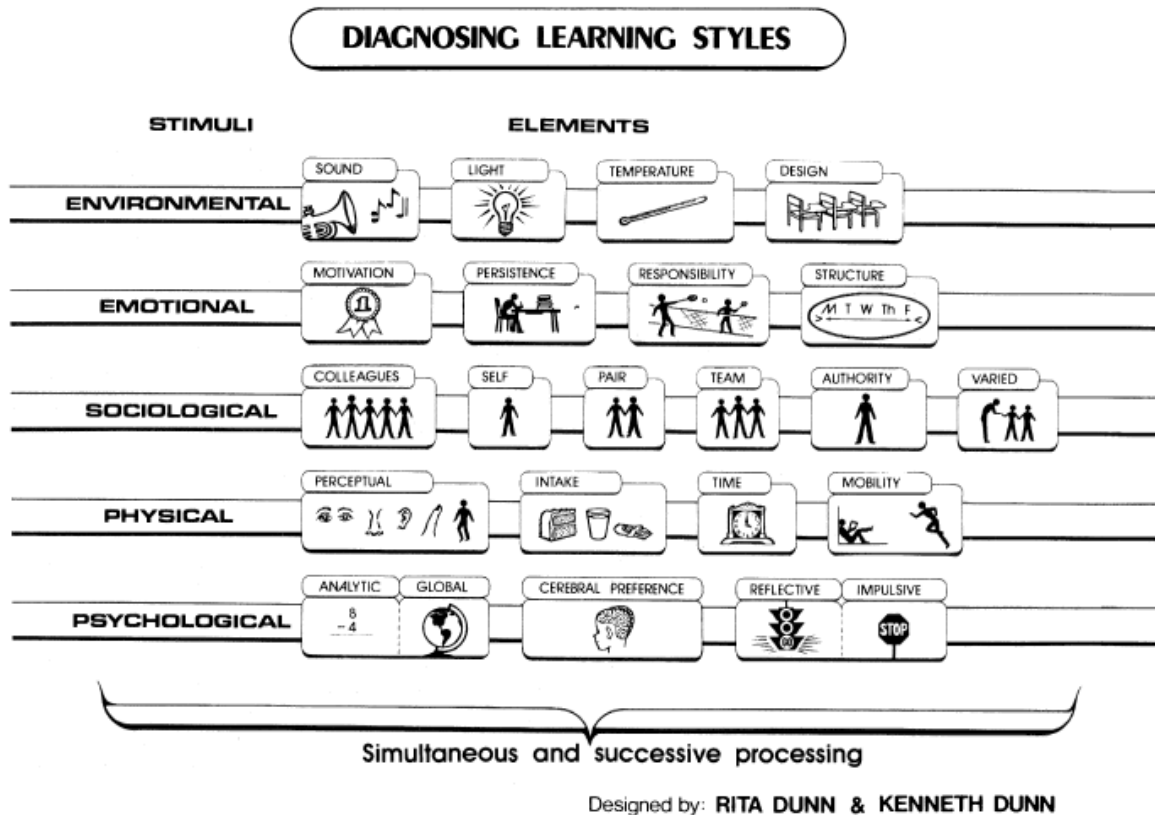


Fig. 5. Elements and categories of the learning style model of Dunn, Dunn and Price. (Dunn R., 1984)

LSI versions for primary and secondary school children and for adults were developed. Reasonable reliability described by Hoyt's coefficient 0.76 and good validity data have been demonstrated in existing studies. (Cassidy 2004; Mareš 1998)

This questionnaire was also translated into Czech by J. Mareš and V. Slavík. This Czech version was constructed for 3rd to 12th grade students and it was verified with 891 secondary level students and 402 high school students. Compared to the original version this adaptation has only 71 items and less strict limits of the scale for 5th to 12th grade students.

3.2. Motivated Strategies for Learning Questionnaire (MSLQ)

The MSLQ tool was developed by P. R. Pintrich and T. Garcia for testing secondary and high schools students. It is designed to measure student's motivational orientations and their use of different learning strategies. This questionnaire consists of 81 items, which are formed by 81 different statements. For each statement the participants of the research rate themselves on a 7-point Likert scale where 1 indicates that the statement does not at all represent the way they normally carry out their tasks and 7 signifies that the statement characterizes very well the way they normally carry out their tasks.

Components of the MSLQ are divided in two categories: motivation section and learning strategies section. These categories and their sub-scales are summarised in Table 2.

Table 2. Components of MSLQ. (Artino, 2005)

Part 1: Motivation Scales		Part 2: Learning Strategies Scales	
Scale	# of Items	Scale	# of Items
1. Intrinsic Goal Orientation	4	1. Rehearsal	4
2. Extrinsic Goal Orientation	4	2. Elaboration	6
3. Task Value	6	3. Organization	4
4. Control of Learning Beliefs	4	4. Critical Thinking	5
5. Self-Efficacy for Learning & Performance	8	5. Metacognitive Self-Regulation	12
6. Test Anxiety	5	6. Time/Study Environmental Management	8
		7. Effort Regulation	4
		8. Peer Learning	3
		9. Help Seeking	4
Total Number of Items	31	Total Number of Items	50

3.3. Several examples of actual questionnaire items

LSI questionnaire items (see Fig. 6) are rated through the 5-point Likert scale (Fig. 7). Items showed in Fig. 6 refer to environmental preferences of the learner.

- I study best when it is quiet.
- I study best at a table or a desk.
- I can ignore most sound when I study.
- I like to study by myself.

Fig. 6. LSI items. (Dunn & Dunn & Price, 1995)

Strongly Disagree	Disagree	Undecided	Support	Strongly Support
1	2	3	4	5

Fig. 7. LSI Likert scale.(Dunn & Dunn & Price, 1995)

Figure 8 illustrates one MSLQ questionnaire item with the 7-point Likert scale. We should note that the expressed statement is related to the content of the course because this fact is significant for MSLQ items.

1	2	3	4	5	6	7	
<i>Not at all true of me</i>						<i>Very true of me</i>	
32. When I study the readings for this course, I outline the material to help me organize my thoughts.							

Figure 8. MSLQ item example.(Artino, 2005)

From previous information it is obvious that LSI questionnaire can provide answers to the questions about the learning environment of the learners, their preferred learning situations or about their reactions to the assigned tasks. In contrast, MSLQ is more narrowly focused. It encompasses students' motivation and their learning strategies, so it provides different information than LSI.

4. Our scheduled research

Three main tools are intended to be administered to the participants of our research: Learning style questionnaire, Epistemological Beliefs Assessment for Physical Science (EBAPS) and Conceptual Test in Optics originally developed for this research. The development is in progress and detail description will be provided for example within ICPE 2013 conference. For the diagnosis of learning styles used by pupils during learning physics we will use one of already existing and validated learning styles questionnaires. From the wide spectrum of tools, overviewed e.g. by Mareš (1998), the final choice will be taken only from two mentioned questionnaires LSI and MSLQ because of the following reasons. LSI is one of the most widely used questionnaires that diagnoses many aspects of learning styles such as learner's environment or emotional processes. Outcomes obtained by this questionnaire could answer the questions about preferred learning environment, social perspective of learning (pupils' learning with/without friends or other classmates), learners' reactions on the tasks etc. In contrast, MSLQ is more narrowly orientated. It concerns about the pupils motivation and their learning strategies so the outcomes obtained by MSLQ will represent preferences in these areas. Different outcomes mentioned above will have different impacts on the real teachers' praxis. That's why the final choice of the instrument for learning styles diagnosis will be done after a discussion with experts in physics education.

The respondents of our research will be Czech high school students in their last two years of studies.

The main goal of our project is to obtain detailed description of the learning styles used among Czech high school students in physics - optics. Our research is aimed at optics because of two reasons: 1. it has not been explored in terms of learning styles and it contains topics with both a low level of abstraction (geometric optics) and a high level of abstraction (wave optics). 2. in the Czech republic optics is usually thought in the last two years of high school studies, when the students probably have their learning strategies fixed as reactions to their preferred learning style.

The research will also compare learning styles and strategies of students with excellent and below-average results in physics. Expected diversity in students' approaches will be presented to the wide expert public and recommendations for teachers and students will be formulated. It will allow teachers to choose appropriate methodical tools to provide good physics learning environment to different types of students.

5. Conclusion

The article describes learning styles and strategies of secondary level students and the design of the research aimed at student's learning styles in physics, particularly optics. In expert community there are several different approaches and definitions of learning styles used. We introduce some of the main approaches and definitions and we delimit the terminology used in our own research.

In our research we understand the learning style as "the composite of characteristic cognitive, affective and physiological factors that serve as relatively stable indicators of how a learner perceives, interacts with, and responds to the learning environment," in accordance with Keefe (1982). We use the term "cognitive style" as a part of learning style in our research and as a fairly fixed characteristic of an individual. We also distinguish "learning strategy" in our terminology as an obtained behaviour of how the learner approaches the task so it includes methods and processes that students adopt while studying.

Our research is aimed at physics and the main goal of this project is to obtain detailed description of the learning styles used among Czech high school students in physics - optics. We decided to use one of already existing and valid questionnaires to diagnose typical students' learning styles. The final choice will be done from one of the two mentioned learning styles questionnaires LSI and MSLQ after a discussion with experts in physics education. By the research we will also compare learning styles and strategies of students with different level of physics concepts knowledge. Outcomes of this research will be presented to wide expert public and recommendations for teachers and students also will be formulated.

Acknowledgements

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4th International Conference on New Horizons in Education

Local Ceramic Stoneware Body Exploration as Alternative Artificial *Walet* Swiftlets Nest

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Abstract

Recently, *Walet* industry used artificial template nest which produced by plastic. It happens to be as new production method to increase the production of swiftlets nest. Unfortunately, those materials gave negative effect to the nest. Plastic materials can irritate the respiratory system, aggravate asthma and lung diseases, permanent lung damage, and affect the immune system. Because of that, natural source based on composition of ceramic materials such as stoneware incorporate with limestone (Calcium Carbonate) will be use to substitute these artificial materials. The objective of this research is to get the appropriate stoneware composition based on its physical properties such as shrinkage, strength and water absorption. In laboratory test, stoneware was divided into five groups which differentiated by the firing temperature; 700°C, 800°C, 900°C, 1000°C and 1200°C. All test pieces prepared as test bar with a press mould technique due to the production application suggested. The physical reaction shows a significance result where the strength and water absorption of the stoneware reduced due to the increasing of firing temperature. The production flow does not show any defect of crack or broken while drying or firing was implemented. Those results became as a major guideline in producing a new artificial nest based on natural material from stoneware body. These result will derived into the actual design of *Walet* nest template.

Keywords: Swiftlets, template nest, stoneware , limestone, modulus of rupture

1. INTRODUCTION

Aerodramus Fuciphagus or also known as *Walet* in Southeast Asia region produce the bird nest that contain 90- 95 % of saliva, 5- 10% of feathers and purities (Ibrahim, Teo and Baharom, 2009). The bird nest is a healthy food and give good effects for curing tuberculosis, dry coughs, alleviating asthma, stomach ulcer, relieving gastric troubles and general weakness of bronchial ailments. Consuming bird nest regularly can give a person exuberant physical and mental strength as well as to restore one's youthfulness. The bird nest are assumed to improve skin complexion and acted as anti aging (Lee and Lamini, 2011).

Recently, the industry used several methods to attract *Walet* to build the nest. One of the method by using a template nest. In the market, there are various template nest made from different type of materials such as plastic, silicone, rubber, metal and paper. One of the favourite material that have been use to make a template nest is plastic. However, these plastic materials will give negative effect to the *Walet* nest. Plastic materials can infuriate the respiratory system, irritate asthma and lung diseases, cause permanent lung damage, and affect the human immune system (Lithner, 2011).

*



Fig. 1. Template nest made from plastic

This research will use Stoneware body as a main material because of its strength and it can be fired to very high temperatures of 1200- 1300°C (2192- 2372° (Atkin, 2005). S.Salehi et- al also stated that the ceramist used stoneware body as a material in their artwork because of its strength (Salehi, Zainuddin, Anwar and Hassan, 2012). Through similar research has been done by R. Anwar et- al, it can be the ceramic materials has been used to replace the other materials to increase the structure of the material composition (Anwar, Kamarun, Vermol and Hassan, 2011). The stoneware body will mix together with Calcium Carbonate (Limestone) to attract *Walet* to built the nest because of Limestone comes from *Walet* habitat which is Limestone cave. It can reducing odors and neutralize the acid (Smith, Orlando and Fla, 1987). the other study had been proven that the strength of the stoneware body was increasing by adding the flux. it can achieved the high percentage of Modulus of Rupture and low rate of water absorption (Wannagon, Sornlar and Choeycharoen, 2012).

The main objective of this is to obtain the best composition of Stoneware body which will be use to produce *Walet* template nest. the stoneware will mix with different ratio Calcium Carbonate because of its based on natural materials from the *Walet* habitat (cave). Furthermore, Calcium Carboante also have its own characteristic such as reducing the odors and neutralizing the acid. The composition was chosen based on low rate of water absorption and high strength of the body. the shrinkage result will be the guideline to get the right size when producing the model of ceramic template nest.

2. METHODS

The materials that have been use are Stoneware body and Calcium Carbonate (Limestone). The Stoneware body was mixed with Calcium Carbonate with different ratio of composition, which are 0% of Calcium Carbonate, 30% of Calcium Carbonate, 50% of Calcium Carbonate, and 70% of Calcium Carbonate. Those two materials were sieved to get same particle size which is 100 μ . Then, all the materials were mixed together with specific amount of water. After that, the mixture were wedged into a dough. Then, the test bars with dimension of 100mm x 100mm were produced made by press mould technique and dried at room temperature for 3 days. The dried test bars fired in electrical kiln at different range of temperature which are 800°C, 900°C, 1000°C, 1100°C and 1200°C. The fired test bars were measured to determine the shrinkage from dried body to the fired body. Water absorptions of the test bars were determined by Archimedes method where the measurements required the test bars being immersed in the cold water for 24 hours (Khalaf and DeVenny, 2005). The mechanical strength or

Modulus of Rupture of the fired test bar was determined via 3 points bending test. The stress applied on the bars is described in Modulus of Rupture (MOR). The formula was stated below;

$$\sigma = \frac{3FL}{2bd^2}$$

Where σ (N/mm²) is the stress required to rupture the bars, F is the load (N) at the fracture point, L (mm) is the length of the support span, b (mm) is width and d (mm) is thickness [6]

3. RESULTS AND DISCUSSION

3.1. Shrinkage

Reported in Table 1. are the shrinkage result of the Calcium Carbonate percentage adding into the Stoneware body. The lowest shrinkage values was recorded for 70% of Calcium Carbonate followed by 50% of Calcium Carbonate.

Table 1. Shrinkage, temperature and percentage of Calcium Carbonate adding in the Stoneware.

Temperature (°C)	Percentage of Calcium Carbonate (%)			
	0	30	50	70
800	4.60	0.00	0.00	0.00
900	5.20	2.60	0.00	0.00
1000	5.60	2.40	1.60	0.00
1100	8.00	1.00	0.00	0.00
1200	12.60	9.20	1.60	0.00

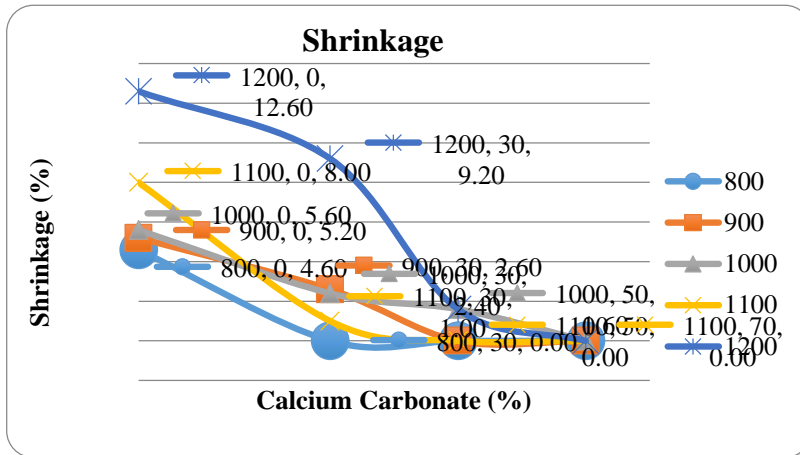


Fig. 2. Shrinkage vs percentage of Calcium Carbonate at different range of temperature.

The flow curves of shrinkage is reported in Fig 2. It can be seen that the shrinkage decreased with sequenced with additional percentage of Calcium Carbonate and 800°C of temperature shows the lowest percentage of shrinkage. This result indicates that the presence of Calcium Carbonate in the stoneware body was decreased the shrinkage of the composition.

3.2. Modulus of Rupture (MOR)

The Modulus of Rupture, temperature and percentage of Calcium Carbonate adding in the Stoneware, summarized in Table 2. the 1200°C of temperature recorded the highest percentage of Modulus of Rupture same as the 30% and 50% of Calcium Carbonate.

Table 2 : Modulus of Rupture, temperature and percentage of Calcium Carbonate adding in the Stoneware.

Temperature (°C)	Percentage of Calcium Carbonate (%)			
	0	30	50	70
800	0.04	0.00	0.00	0.00
900	1.49	0.69	0.00	0.00
1000	9.37	4.81	4.39	0.00
1100	11.61	8.36	7.33	0.00

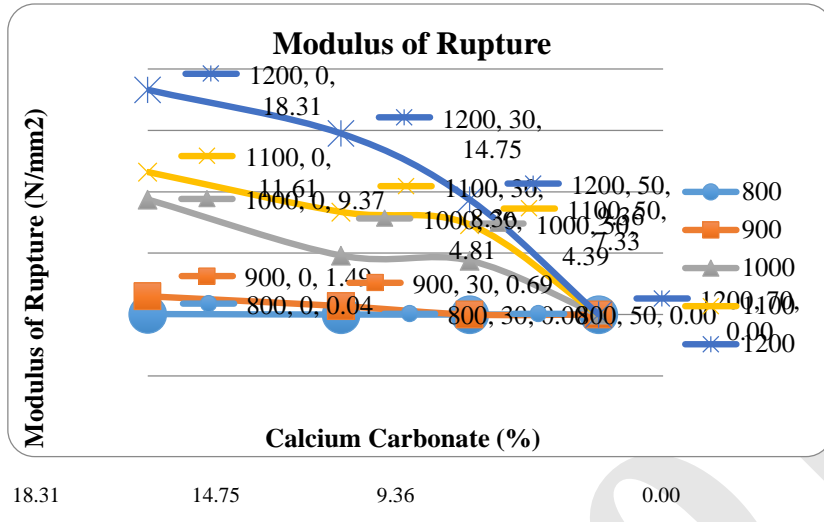


Fig. 3. Modulus of Rupture vs percentage of Calcium Carbonate at different range of temperature.

Reported in Fig. 3 is the behaviour of the Modulus of Rupture as a function of percentage of Calcium Carbonate, for the different range of temperatures. The strength of the test bars decrease slightly with additional percentage of Calcium Carbonate on temperature of 800°C and 900°C. Nevertheless, the strength jumped rapidly started from 1000°C to 1200°C. From the result, it can be concluded that the Stoneware body will lost its strength when mixed together with the Calcium Carbonate. The 100% of Stoneware body achieved the highest result of strength test which is 18.3N/mm² with the temperature of 1200°C.

3.3. Water Absorption

Table 2. collects the water absorption, temperature and percentage of Calcium Carbonate adding in the Stoneware. It was recorded that the low percentage of water absorption was recorded at 800°C of temperature in all the composition.

Table 3 : Water absorption, temperature and percentage of Calcium Carbonate adding in the Stoneware.

Temperature (°C)	Percentage of Calcium Carbonate (%)			
	0	30	50	70
800	0.04	0.00	0.00	0.00
900	1.49	0.69	0.00	0.00
1000	9.37	4.81	4.39	0.00
1100	11.61	8.36	7.33	0.00
1200	18.31	14.75	9.36	0.00

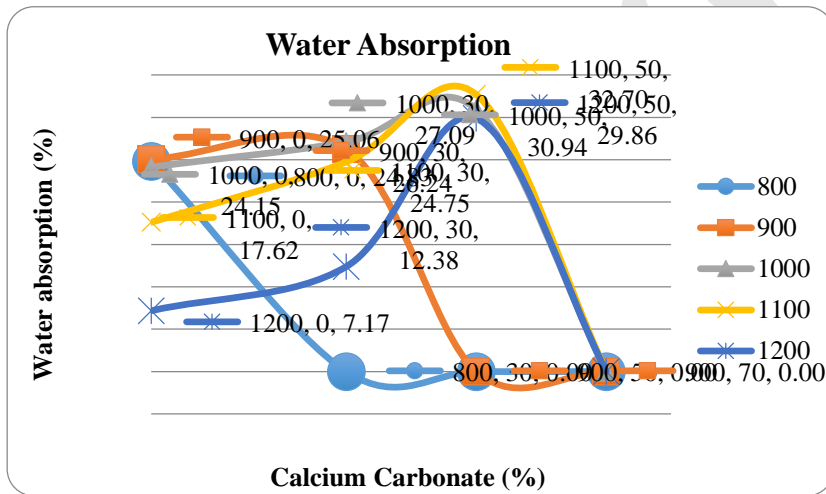


Fig. 4. Water absorption, temperature and percentage of Calcium Carbonate adding in the Stoneware.

In Fig. 4, the water absorption values of the percentage of Calcium Carbonate fired with different range of temperature are shown above. It can be seen that 100% of Stoneware body reached the lowest percentage of water absorption at the firing temperature of 1200°C. It can be conclude that the low temperature such as 800°C, 900°C and 1000°C were contained wide pores and it were absorbed a lot of water . The water absorption decreased with declined percentage of Calcium Carbonate.

CONCLUSION

In sum, the Stoneware body was proved as the highest percentage of Modulus of Rupture. Unfortunately, these body have high percentage of shrinkage. Due to the high temperature of firing which is 1200°C, the Stoneware body achieved lowest percentage of water absorption among other composition.

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4th International Conference on New Horizons in Education

Loopholes of plagiarism detection software

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Abstract

Nowadays, information becomes more and more important for our society. We can get information from everywhere easily and fast. The release of translation software eliminated the problems of translating a document. As a result of the continuous development, recent software are handy and sophisticated. This new way of getting information simplified stealing other people's spiritual work. Plagiarism becomes frequent. The number of students who submit other's work as their own is constantly increasing. The Internet gives them this opportunity. This growth won't stop as far as we don't try to detect plagiarism.

The scandals of recent past made plagiarism detection a popular issue. The topic has chosen, because the further aim of this work is to develop a software, which meets our world's requirements. Throughout my work some software have been tested, in a few cases, those failed in finding plagiarism, so now it is well-known, what the loopholes of these systems are. The future work is supposed to fix these problems, making my software reliable in order to stop plagiarism among universities.

The first tested software was the KOPI online plagiarism detector, which is developed and operated by MTA SZTAKI Department of Distributed Systems. The system compares documents with the ones found in its own database, which contains other users' documents and articles from the English and the Hungarian Wikipedia.

Plagiarism detection with KOPI has four steps. It chunks the document into 40-60 characters long fragments. Storing these fragments results a huge amount of data, so it creates fingerprints digesting the original chunks. The software uploads these to the database and compares it with the fingerprints of other documents, checking the originality of the work.

Plagiarized documents have been made using the Internet. The text of these documents is copied, so if the system works well, it will show the result of 100% plagiarism. First of these documents is copied from Wikipedia. After the application checked the text, the result was 68%. It is a very disappointing result. After checking more documents with several types of products, it is a fact, that most of the software solutions fail to find all type of plagiarism.

Keywords: plagiarism; detection; software; loopholes

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1. Introduction

In the 21st century information become more and more important in our everyday life. Internet brings us the opportunity to get information about any topic and also eliminates the obstacles of physical distances (Rebecca Moore Howard, 2007). We can scan for information on the furthest universities' sites without leaving our room. Different languages can't raise difficulties due to new, more sophisticated and accurate translation software. This rapid and easy way of getting data can lead to plagiarism. Students often copy other people's work and submit it as their own, so they can finish their paper fast and avoid hard work. Plagiarism becomes common and popular, meanwhile the time spent with assiduous research decreases. It is convenient to copy great people's thesis and so a tough row to hoe to make your own, especially when there is no difference between the evaluations. The number of people using Internet for this purpose is constantly growing during these days and this tendency won't stop until we make efforts in order to stop this misuse of the World Wide Web.

What plagiarism exactly means? Not as easy question as it should be, the answer is very dim. A lot of researchers take up this question. Maurer gives us the best overview of the issue (Hermann Maurer & Frank Kappe & Bilal Zaka, 2006). As the result of his work, we can pronounce the we are talking about plagiarism, when someone copy the content – it can be words or an idea – of an other people without any reference to the original author of the work. Looks like an easily understandable rule, but it defines three types:

- Coping the text from word to word
- Paraphrasing
- Plagiarism after translation

Coping everything the same way like you can find it in the original article is very often. If you do this, you have to use quotation marks and also have to mark the writer of the quoted text. In case of missing any of these two, you commit plagiarism. Usually, it happens in some cases, when nobody cares about the quality of the work, and no one is supposed to check our work. Due to technology in our time it could be a simple task. Plagiarism detection software deal efficiently with this task. Every teacher should use one of these!

Paraphrasing is a much more complicated question. It means coping other people's ideas or reproduce the text using other words. In this case you have to refer to the author of the paraphrased text. Forgetting to mark the writer means plagiarism. This is a more sophisticated way of stealing other's intellectual product. It occurs when the requirements are greater and someone expected to inspect the paper. Current applications unable to detect paraphrasing. The next generation of plagiarism detection software must solve this problem (Maria Kashkur & Serge Parshutin & Arkady Borisov, 2010).

Plagiarism after translation is also a difficult issue. If you translate the text to the language of your work, it is also a copy of the original work. That case, you have to put the name of the person who wrote the article after the quoted part. Missing reference can cause you trouble, because it is also plagiarism. Usually happens in scientific articles, when advanced information unavailable in the topic, because most of the researches documented using foreign languages. Recent software cannot bring a solution this problem. It should be solved in later versions of the software.

Of course, any kind should be prevented. As mentioned before, lots of people have written about the topic, but no one ever mentioned the danger of plagiarism. It can damage our future carrier if it is revealed. There was numerous incidents when politicians, novelists, researchers and journalists have lost their job because someone brought to light their secret. Let's see a few example from the recent year's scandals. Anette Schavan, German Federal Minister of Education and Research had to give up his work as minister. President of Hungary, Schmitt Pal also had to quit his job, after a journalist found plagiarism in his thesis (György Miklós, 2012). Written media is also full with such incidents. Jayson Blair, the writer of New York Times, had a very short career. He was talented, the readers liked his articles, but one day came to the lime light, that he plagiarized other's work.

Maureen Dowd also wrote to the Times (Online Classes, 2009). The plagiarism also destroyed his image. Last, but not least, some examples from scientific life. Stephen Ambrose was a well-known historian. The value of his work has decreased, when the truth turned out (Jessica Gopalakrishnan, 2012). The same thing happened with Jonah Lehrer (Jonathan Bailey, 2012). Truth will out and it will stigmatize the plagiarizer, which sign will never disappear.

2. Motivations behind plagiarism

Research has been made in order to find out why plagiarizing is so popular. This research started with a personal experience. Throughout education from elementary school to university plagiarism detection has never been made on papers. Presentations, essays has been created on different topics, but nobody was interested in the source of the work. This is where plagiarizers born.

The lack proper education about plagiarism leads young student to copy from the Internet. They do not know what exactly plagiarism is. The teacher's responsibility is to introduce this topic to the class, it is too late to teach them about this issue at the university. All students must know that intellectual thieving is almost like stealing a car, get good grades and gratitude due to other's work is not a real honor. On the other hand it is also essential to learn the right way of quoting. It is hard to write essays without sources, so schools should take time to teach children, about the art of writing a scientific article, however it is a short essay.

Furthermore, schools and universities miss to make the necessary steps in order to detect plagiarism. None of the schools use plagiarism detection software, universities only use it on theses. It is a well-known fact. Students do not have to fear of detection. Institutions like this should start to use plagiarism detection software. There always will be people, who will choose the easier way of working. The number of opportunities of plagiarizers are continuously increasing as a result of technical development. The only way to deal with is to implement the technological support of the software.

It is also a huge problem, that despite the institution using plagiarism detection software, it cannot work properly. Nowadays applications rarely meet the expectations of the environment. These software cannot deal with paraphrasing and plagiarism after translation. It is a huge incompleteness, because changing a few word or using a translator do not results own ideas, it is still plagiarism. Developers should assess the requirements and start to make more efficient and user friendly programs.

The biggest motivation is the convenience. Coping is a simple way of making a research. For these people research actually means nothing. They do not have an own idea about the chosen topic. Plagiarizers do not have to use their brains. It also faster to steal text, than making our own. Personal thinking about hard and substantial work is the biggest problem.

Both side have to change in order to eliminate one of the main problem of recent education. It is a well-known fact, that numbers of plagiarisms is still increasing, and this tendency continues as far as we will not make efforts to stop this. People, who do not deserve their degree, should never let finish the university. This is a very actual topic, due to recent events. The lack of solutions and the effect on our society makes this issue so important and interesting. The concentration on plagiarism in education does not mean that other fields which is full with copying is not important, but this is the core of the problem. Plagiarizing is an old problem, but nowadays it is big enough to spend time and money on it (Salha M. Alzahrani & Naomie Salim & Ajith Abraham, 2012).

3. Plagiarism detection software's test

The best way of finding plagiarism is using a software. It makes the procedure faster and easier, while it is also more efficient than human detection and allows you to compare the paper with huge amounts of articles (José L. Bernal-Agustín & Rodolfo Dufo-López, 2011). A list of criteria a plagiarism detection software meets (Roman Lukashenko & Vita Graudina & Janis Grundspenkis, 2007):

- Scans and compares huge amount of data fast
- Uses internet connection to find sources on the world wide web
- Has a database to store old documents
- Handles quotations, links and references
- Handles pictures and tables occur in the text
- Makes understandable and substantial reports, shows the original source

During this research 4 software have been tested with 4 types of document. The following 4 software are tested:

- Google
- KOPI Plágiumkereső
- Plagiarism Detector
- Plagiarism Checker

The software are tested with following types of documents:

- Copied from Wikipedia
- Long article from the Internet
- Translated text
- Old thesis

3.1. Google

Google is the world's most famous search engine (Wikipedia, 2013). It is a very useful program for searching relevant articles that is the main reason, why Google became the best tool for plagiarizers. Using Google is free, that fact is a key element of its popularity. There are two reasons of the test of Google. First, this application gives the opportunity for searching after sources. It is interesting, because the copied article is found with Google, so it must find the source of a document. Second, the results are good basics to the results proven by other software.

First of all, the texts copied from Wikipedia have been checked. It is not reasonable to use Google for plagiarism detection, because only 32 word long text is allowed to search for. If we know the exact place of the copied text, Google is a good tool, but it is hard to choose the tested sentence.

Checking the long articles with Google bring the some problems. Searching for fragments always showed results, but it is hard to compare the two texts. We cannot decide that how many common sentences exists in both documents.

Translated plagiarism is hard to find like this. Google does not have a built in translator, if we use Google to retranslate the sentences to its original language and then we search for articles with these keywords, it can show good results.

To analyzing theses is also difficult with Google. Every sentence results potential source articles, but comparing these sites rarely shows overlapping. Google is a useful tool for proving the fact of plagiarism, but hard to use for finding it.

3.2. KOPI Plágiumkereső

KOPI is a plagiarism detector developed and operated by MTA SZTAKI Department of Distributed Systems. The project started in 2011, after 3 years of hard work it has started to work online. In 2011, it is improved for searching plagiarism after translation. This is the one and only plagiarism detection software which is made by Hungarian programmers. KOPI requires registration, but after, it is free to use, until you reach the limit. If you want to search more than allowed, then you have to pay for it. Before detection, you have to upload every document. There are 3 options: monolingual search, multilingual search or compare own documents. Monolingual search has two types. First version searches for possible sources only in the database of Hungarian Wikipedia, second option tries to find similar articles in the database of documents uploaded by users. Multilingual search check the English Wikipedia after the translation of the document. Compare function analyses the overlapping between our documents.

Checking documents provided interesting results. In the beginning, the Wikipedia related documents have been tested. Comparing with other users' documents works well, every time the database contained contents like mine, the software found it, but if there is no similar data in the database, that does not mean that the content is original. Checking Hungarian Wikipedia for articles was disappointing, however, this is the core competency of KOPI. Despite that, the average result is 68% plagiarism. It is a very bad result, because the whole text is copied from Wikipedia and no changes were made to the text.

Testing long articles has no result. KOPI does not search on the internet. It is easy to pass the plagiarism detection, if only Wikipedia's articles' content is checked. The only opportunity to find Internet plagiarism is other users' documents. Imagine how small Wikipedia when we compare it with the whole web. The chance of finding copied content is as small as Wikipedia.

In real situations, like theses, KOPI is not reliable. Checking these documents brings no results. It only found overlapping in proper nouns. That proves nothing. In that case it only shows the suspicious sentence, but you cannot check it in the real context.

The last tested option was the best. Comparing own documents is the best component of the program. It compares every selected document with each other, so it is easy to find conformity in the submitted works. Each student have to work on his own, no overlapping allowed between these. It is rarely happens that two people have the same idea with the same words on a topic.

3.3. Plagiarism Detector

Plagiarism Detector is designed by Skyline, Inc. Programmers made this program cooperated with numerous university. The development began in 2005. The software has won several prizes between 2008 and 2010. Thousands of teachers use this application, but mostly in the European Union and the USA. Before we start, the software needs to be download and set up on our computer. No registration required.

First of all, Wikipedia's articles are checked. Plagiarism Detector is very handy and easy to use. After selecting a document, the software has started to check it. This software outperformed KOPI both in speed and efficiency, finding 79% of the text plagiarism. It is still not good enough. The result is interesting because it found the source on the internet, but serious error occurred during the compare.

After that, the long articles have been tested with the software. These documents confused the software. It found the original text, but was unable to compare the properly. The result was 19%. That is not true of course, the whole article is copied from the internet. The mistake caused by the overlap detection algorithm.

Then, the translated texts have been checked. Plagiarism Detector gives no opportunity to find this kind of plagiarism. It found the whole text original, despite that it is copied from the Internet. A translator is a missing part of the software. Nowadays, when online translators are widely used it is a very huge imperfection.

Last of all, theses have been examined. Using the application for this purpose is very convenient. It is easy to use Plagiarism Detector, even for those, who are not familiar with computers. The program found copied sentences and showed its possible sources. It also checks references, but this function does not work well. In case of right and similar links, the program does not recognize all of them. It is a huge mistake, because it counts. Correctly referred quotation is acceptable, plagiarism is not.

3.4. Plagiarism Checker

The last tested software was Plagiarism Checker, which is developed by Plagiarisma.Net. A lot of famous high schools and universities use this program. Just a few of them: Benjamin Franklin High School, The University of Michigan, Harvard University. Before detection, we have to download the software or visit their website. Desktop application and online version are also available, registration required. The program checks the documents using a search engine. We have 3 options: Google, Babylon and Yahoo.

First, the articles from Wikipedia have been checked, just like everywhere else. Using different search engines proved different results. Google found 91%, Yahoo 92% and Babylon 100% plagiarism. It is noticeable, that this is the first perfect result. Another interesting thing that meanwhile Plagiarism Detector failed to compare the two texts, Plagiarism Checker almost successfully compared them.

After that the long articles from the internet have been tested with the applications. The same situation happened like before. It provided two different results. Google found 94% plagiarism, meanwhile Yahoo and Babylon found the whole test plagiarism. Plagiarism Checker outperformed both of its opponents.

Searching plagiarism in the translated documents led to no result. We can pronounce that neither Plagiarism Detector, nor Plagiarism Checker are prepared for dealing with these types of plagiarism. As mentioned before, it is a huge disadvantage for those, who use these softwares.

The very last task was to check the theses with Plagiarism Checker. It has proved the same results like Plagiarism Detector. It found a few possible sources, but showed that the greater part of the text is original.

3.5. The results

The following table contains the average results of the software. In Google's row "+" means good results, "-" means bad results, due to Google does not show the percentage of overlapping.

1. Table: Test results

Name	Wikipedia related articles	Long articles from the Internet	Translated documents	Theses
Google	+	+	-	-
KOPI	68%	0%	0%	0%
Plagiarism Detector	79%	19%	0%	1%
Plagiarism Checker	94%	98%	0%	1%

4. Other Aspects

The results below only show the overlapping between two or more separated texts. Actually, this is not plagiarism detection, but searching overlapping between texts. Plagiarism detection is much more than this, it also includes the examination of references. Using other people's work is allowed, but there are rules for it. Plagiarism detection software should take care about this. Nowadays, when different institutions accept different reference to the original author it is very hard to make this happen. It is almost impossible to include the right test of all kind of reference. A uniform system should be established for referencing to make it possible. Plagiarism checker try to check these references, but it fails. The software counts the amount of text which is between quotation marks. Using quotation marks is necessary but enough to a correct reference.

The possible sources of plagiarism is much bigger than we think. It is easy to see, that searching in Wikipedia's database is not enough, but we have to admit that searching on the internet neither. Written media, text books and other books can be good sources for a plagiarizer. It is not possible to detect, because there are rarely digitalized version of the content. This is another big problem, plagiarism detection software cannot search paper-based data. For example, scientific articles should be digitalized.

Storing recently checked document is essential. Older thesis could be a great basic to a new. If we let the old one disappear in our system, we will not be able to detect text copied from it. It is really useful for someone, who checks documents from the same field of science. Collecting these document on a central server is hardly suggested, but it is also important to let the user see the older document.

Comparing own documents to each other is another simple function, that can make the software better and improve its efficiency. Searching overlapping between classmates' works usually prove results. A classmate is very frequently the source of the text. Combining the last and this function is also useful.

The availability to the application is a fascinating question. Plagiarism detection software are for institutional purpose. The problematic issue is the public availability. Those who not copied text foully could check their work, but those, who plagiarized may use this for other reason. They probably would check their work in order to find the weaknesses of their work. If they know where the fact of plagiarism is obvious, they may try to mask it, instead of referencing.

As mentioned in the beginning, there other fields of plagiarism, so other adaptations are possible. Every situation when people have to submit a paper, and it requires personal work is a potential place for plagiarizing. Just a few idea: written media, CV, motivation letter, advisement or expert's report.

Graphic User Interface is the least important from the aspect of plagiarism detection. Well-known cliché, that it should be simple, memorable, perspicacious, so briefly user friendly. Defining what it actually means is a very hard task. Y generation grew up with computers, but the etalon should be the older generations, after all, they are our teachers.

5. Summary

Plagiarism is not only the 21st century's problem, it is the problem of education. In our days, we cannot ignore this problem. Early software unable to deal with the task. More development is necessary in order to keep up with plagiarizers. This document is about to introduce the background of the problem. Current software have been tested, and it proved the incompleteness. Further works are planned in order to create a new alternative.

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Low temperature transparent glaze study in sustaining luminescence substance for local ceramic craft

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Abstract

Malaysia, as a country with significance heritage were always attempted to discover a novel method or investigation in order to preserve these valuable craft. In this work, we attempted to investigate the possibility of luminescence glaze to be applied as a novel surface treatment for local ceramic craft. Literally, the application of borax acid as flux to lower the glaze melting temperature is determined to the temperature of the glaze composition itself. Borax acid reacts as a melting agent that allows low temperature ratings to decrease further. The goal of this study is to match the glaze effect with stoneware body. Borax acid was used as composite with the characteristic of melting point of approximately 573°C. These study was done by stoneware clay was casted using plaster mould into solid round samples with the dimension of diameter 40mm³. Then, the samples are indicating to high bisque sintered in electrical kiln at 1000°C for 8 hours. Common decorating method; on glaze was applied on high sintered bisque samples. The composition of glaze with a high amount of borax acid as flux is applied on samples. An appropriate amount of the glaze materials was weighted in 100 gram for each batch the percentage of flux content. Then glaze sintering consecutively at 800°C, 850°C, 900°C and 950°C for 6 hour in a mild oxidation atmosphere. Noteworthy between the firing temperatures and percentage of flux in glaze composition with borax acid as flux intended for determine low temperature glaze proved by sustaining luminescence substance. As a result; the most accurate formulation of glaze composition is with the content 80% of borax acid to reach matured range. It's sustained the glow of luminescence substance SrAl₂O₃:Eu²⁺,Dy³⁺.

Keywords: stoneware, borax acid, low temperature, glaze

1. INTRODUCTION

As silica, fluxes and alumina are combined in a eutectic mixture and fired to a high enough temperature, a glossy transparent glaze results. In a eutectic, the melting temperature is lower than that of either of the component materials (silica or alumina) alone. A combination of several different fluxes also helps to melt the glaze. In glossy glazes, the alumina to silica ratio should be around 1:9. A stiff, stable glaze with a ratio of around 1:7 is preferable for painting with oxides or under glazes. To make the glaze matt, excess alumina can be added so that the alumina to silica ratio is around 1:5. The addition of any of the alkaline earths such as magnesia can also cause the glaze to become matt. Any excess material not involved in the melt remains suspended in the glass or crystallizes out on cooling. Crystals form in fluid glazes with low alumina (Muller, Kristin, Zamek, Jeff, 2011).

Currently, long lasting phosphorescence have attracted much attention in a assortment of applications, such as lighting source, storage devices, medical instruments, pigments, arts and craft. Several attempts were initially

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used for synthesis route, such as conventional solid state reaction, sol-gel method, combustion, and microwave heating synthesis. Typically, the synthesis process will be more complex to obtain a good phosphor that consists of high intensity and long persistence glowing properties in an efficient, cheap, and simple way. Solid state reaction process has been extensively used for phosphor synthesis (A. Nor Nazida, M. N. Ahmad-Fauzi, M. Nazarov, A. Azizan, K. Shah Rizal, 2012). Nevertheless this process often results in poor homogeneity leading to high calcination temperature, irregular morphology, and long calcination period (C.H. Lu, P.C. Wu, 2008). It has been reported that strontium aluminate phosphors were generally prepared at high temperatures (1400 - 1600°C) for developing a well crystallized structure.

Labu Sayong is one of a local craft which originated along district of Kuala Kangsar, Perak (F. Kendut, 2006). The soil used for *Labu Sayong* making is white, black, buff and yellow in color (A. T. Ahmad, 2010). The soil can be categorized as earthenware or low temperature body which has a sintering temperature of 1000°C – 1180°C (Atkin, 2005). Since pre-historic period *Labu Sayong* was applied with a conventional decoration (K. Abd Aziz, F. Z Abdullah, 2011). The current situation of local craft in Malaysia is using as a souvenir rather than kitchen equipment in pre-historic. The most popular local craft symbolize Malay culture is *Labu Sayong*. Currently, *Labu Sayong* makes use of as souvenir for wedding occasion and producing in miniature size. Therefore, the enhancement of decoration method for *Labu Sayong* must be deed. As discussed by Noordin (2012) another interesting approach for *Labu Sayong* decoration effect is the use of luminous-glaze. Figure 1 shows *Labu Sayong* which is *gelugur* types. Function as water vessel until nowadays.

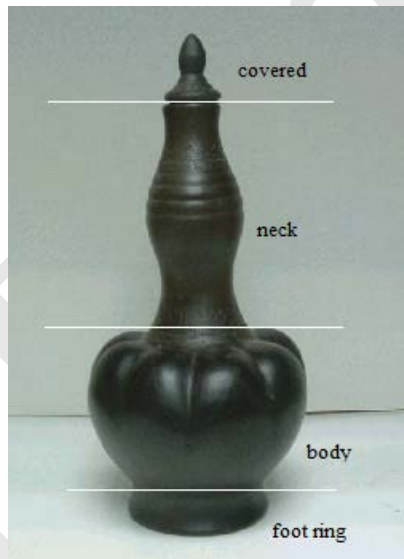


Fig 1. *Labu Sayong Gelugur* (S.N.A Noordin et al, 2013)

The main goal of this work is to determine the low temperature transparent glaze and studying the range of temperatures. This paper reports low temperature transparent glaze splitting studies. Moreover it sustained the luminescence substance glow as decoration method for low temperature ceramic body.

1.1. Flux

In ceramics in support of glaze forming process, the addition of a flux lowers the melting point of the body or glaze. In particular they affect the melting point of silica (SiO_2), which melts to form a glassy phase during sintering process, which bonds the ceramic body or forms the basis of a glaze.

The addition of a flux also promotes fusion or vitrification (development of a glassy phase) at lower temperatures than would otherwise be possible without the use of a flux. Some common fluxes are Nepheline Syenite, Barium carbonate (BaCO_3). Another group of fluxes are alkali metal oxides and alkali metal containing feldspars such as potash feldspar ($\text{K}_2\text{O} \cdot \text{Al}_2\text{O}_3 \cdot 6\text{SiO}_2$), soda feldspar ($\text{Na}_2\text{O} \cdot \text{Al}_2\text{O}_3 \cdot 6\text{SiO}_2$) and lithium feldspar ($\text{Li}_2\text{O} \cdot \text{Al}_2\text{O}_3 \cdot 8\text{SiO}_2$). Lead compounds are also in the fluxes category (Warshaw, Josie, 2005).

1.2. Luminescence ($\text{SrAl}_2\text{O}_3:\text{Eu}^{2+}, \text{Dy}^{3+}$)

Luminescence is emission of light by a substance not resulting from heat; it is thus a form of cold body radiation. It can be caused by chemical reactions, electrical energy, subatomic motions, or stress on a crystal (B. Valeur, Mrio N., B. Santos, 2011). Photoluminescence is the type which occurred by ceramic chemical reaction. As revealed by A. Nor Nazida et al (2011) green phosphor $\text{SrAl}_2\text{O}_4:\text{Eu}^{2+}, \text{Dy}^{3+}$ with improved properties was successfully synthesized by solid state reaction and the optimum sintering temperature was greatly reduced to 1250°C . In this work, the low temperature body of ceramic was used. Therefore, the luminescence substances require being banded in low temperature glaze.

2. EXPERIMENTAL

2.1. Material

The standard conventional method is mostly used for the preparation of low temperature glaze. Low temperature glazes were prepared by standard glaze mixing approach using borax acid (B_2O_3), potash feldspar ($\text{Al}_2\text{O}_3 \cdot 2 \text{SiO}_2 \cdot 2\text{H}_2\text{O}$) and kaolin ($\text{K}_2\text{O} \cdot \text{Al}_2\text{O}_3 \cdot 6\text{SiO}_2$) as materials. The raw powders were mixed. An appropriate amount of the starting materials was weighed and mixed. The weight is 100 gram for each batch.

2.2. Method

First, the dry milling was used for 20 min, and then an amount of water was added according to the fluidity. After fully mixed, the mixing was not fully dissolved because of the borax acid. As the concentration of mixing is high, a plastic spatula was used to apply on stoneware sample which has indicated by bisque sintering at 1000°C and then sintered consecutively at 800°C , 850°C , 900°C and 950°C for 6 hours in a mild oxidation atmosphere. The physical parameters, such as heating rates of 7°C per minute, routine cooling furnace and a heating time of 6 hours, were the same for all samples. Subsequently, during the sintering stage; the soaking stage at 573°C for 30 minutes and soaking at 800°C , 850°C , 900°C and 950°C , were also the same for all firing processes.

In order to compare the performance of low temperature glaze, the tests are carried out by dividing the base into four batches, which consist of the same material with different percentages.

Table 1. Glaze Composition

Sample ID	Material	Borax Acid	Potash Feldspar	Kaolin
Batch 1	Composition (wt%)	80%	10%	10%
Batch 2		90%	5%	5%
Batch 3		95%	2.5%	2.5%
Batch 4		96%	2%	2%

3. RESULT AND DISCUSSION

3.1. Percentage of Material

The glaze composition discussed in this paper is based on materials weight of 100 gram. The objective of this research is to study the temperature and percentage of material to fabricate a low temperature glaze composition. Therefore, the material for all batch are same yet different in percentage. Based on common glaze composition as stated in Table 1 previously, slight percentage adjustments were made to the formulation in the material content. This is due to the low temperature of the glaze during the firing process.

3.2. Heat Circulation

Heat circulation is different depends on the dimension of furnace. In heat circulation, significant effect of air bubblers on glass circulation patterns and the enhancement of heat transfer are from the combustion space (Ungan & Viskanta, 2005).

3.3. Experimental

Experiments have been performed in order to analyze which composition of glaze proficient to achieve low sintering temperature. Once the sintering completed at a temperature of 800°C, 850°C, 900°C and 950°C, physically the samples of each batch appear with approximately of all the samples achieve the mature range. The samples of batch 1 are shows in Table 2. The glaze layer of samples with ID; 1, 5, 9 and 13 shown the glossy and shine layer of transparent glaze. The shrinking and cracking was occurred on the glaze layer, however it is controlled. Subsequently, Table 2 was also explained on batch 2 which is also shown the layer of glaze composed by 90% Borax Acid, 5% Potash Feldspar and 5% Kaolin were attained the mature range. The sample ID for batch 2 is 2, 6, 10 and 14 defected by glaze failure; cracking was effect on the surface of the samples, yet it is controlled.

Table 2. Sintering Experiment

Temperature	Sample ID 1	Sample ID 2	Sample ID 3	Sample ID 4
800°C	1	2	3	4
850°C	5	6	7	8
900°C	9	10	11	12
950°C	13	14	15	16

Followed by batch 3 as also shows in Table 2 above were sintered at temperature 800°C, 850°C, 900°C and 950°C. The samples achieve the melting point; however it is shown the melting of the glaze layer. Yet it is still glossy and shines. Next is batch 4 which is also described in Table 2. The samples were indicated to the sintering process; 800°C, 850°C, 900°C and 950°C. The layers of glaze reach the mature range, yet the glaze failure; cracking was occurred on the samples. The result of low temperature glaze shown the batch 1 is the most mature at a low temperature. The mixing composed by 80% Borax Acid, 10% Potash Feldspar and 10% Kaolin shows the layer of glaze less glaze failure; cracking, glossy and shines without cloudy effect.

After all the sintering experimental was done, the batch 1 with temperature 800°C has been decide on sintering with luminescence substance $\text{SrAl}_2\text{O}_3:\text{Eu}^{2+},\text{Dy}^{3+}$. The result show that the batch 1 were successful sustained the luminescence substance of $\text{SrAl}_2\text{O}_3:\text{Eu}^{2+},\text{Dy}^{3+}$ in typical stoneware samples. Figure 2 revealed the result of sintering process.

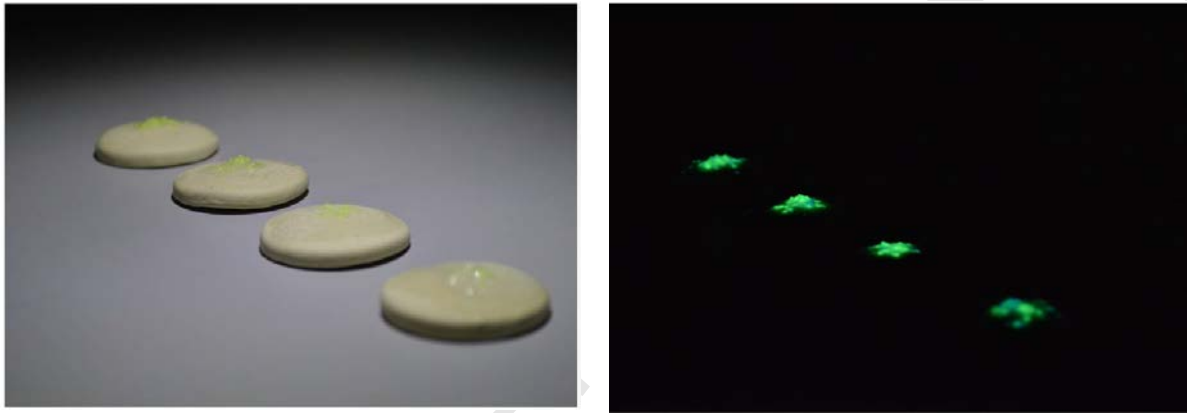


Fig 2. Samples of $\text{SrAl}_2\text{O}_3:\text{Eu}^{2+},\text{Dy}^{3+}$ with batch 1; temperature 800, samples ID 1.

3.4. Sintering Graph

The firing graph is significant to ensure the result of glaze maturity. The core motivation is to determine the optimum sintering temperature which will be used for further low temperature glaze characterization. The composition of glaze which is divided in four batches annealed at different firing temperatures of 800°C, 850°C, 900°C and 950°C for 6 hour in oxidation atmosphere. The firing profile started with 43°C increase to 573°C in 2 hour. Subsequently, at temperature 573°C the temperature maintains in soaking stage for 30 minute. The significant of soaking stage at 573°C is inversion of quartz occurred at this temperature. The quartz crystals change from an alpha (α) crystal structure to a beta (β) crystal structure (Muller et al 2011). After 30 minute, the temperatures again increase from 573°C to 800°C, 850°C, 900°C and 950°C in 3 hour. Yet again the temperature of 800°C, 850°C, 900°C and 950°C have to maintain in 30 minute for soaking stage. The purpose of soaking stage at this temperature is to equalize the heat to the whole furnace. Figure 3 shows the sintering graph that has been employed toward the all four batches.

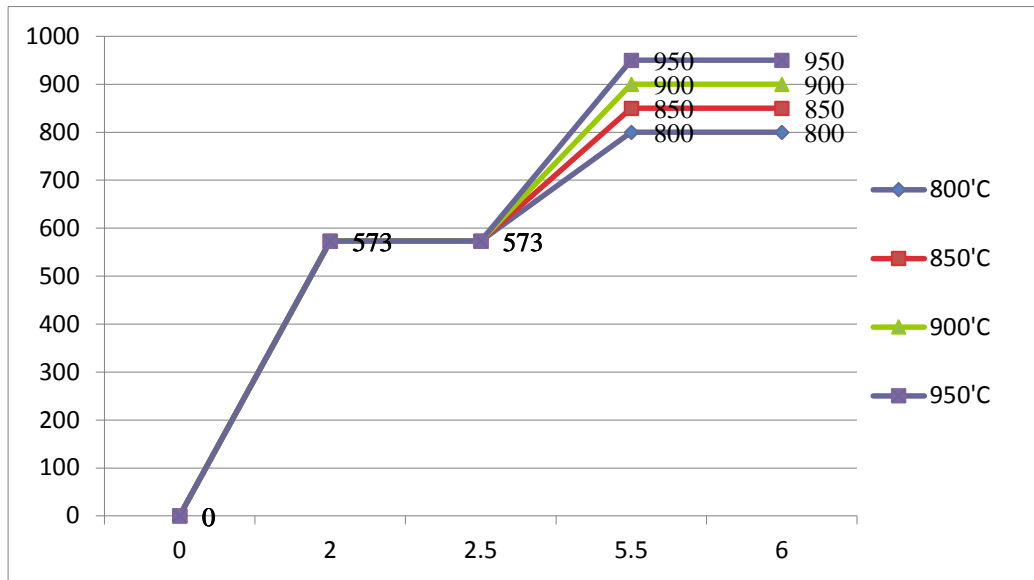


Fig 3. Sintering graph of 800°C, 850°C, 900°C and 950°C

4. CONCLUSION

In conclusion, after all the experimental have been completed, the result and discussion revealed that the experimental have obtained the successful outcomes. The experimental on temperature and glaze composition capable to fabricated low temperature glaze with mature range as early as 800°C. The batch 1, sintered at 800°C is the best result of glaze composition for low temperature transparent. The layer of glaze was glossy and shines. The equal heat circulation during firing stage gave an influent to the mature range of the glaze. Furthermore, the positions of sample during firing stage are also contributed into the successful outcomes and significant to ensure the validity of the outcomes. The goal to achieve low temperature glaze in order to sustained luminescence substance $\text{SrAl}_2\text{O}_4:\text{Eu}^{2+}$, Dy^{3+} with batch 1 at 800°C in purpose of decoration for low temperature ceramic body which is local craft *Labu Sayong* was successful achieved.

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4th International Conference on New Horizons in Education

Mathematics Pre-Service Teachers' Metaphorical Perceptions about Statistics in Turkey

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Abstract

The research is aimed to reveal the thoughts the elementary mathematics pre-service teachers about "Statistics" concept through metaphors. A total of 62 mathematics pre-service teachers, taking statistics courses at a public university in Turkey in the spring semester of 2012-2013 academic year, participated in this qualitative research. The data of the research was obtained by having pre-service teachers answer the phrase of "Statistics is like.....because.....". The data gathered from pre-service teachers have been analyzed using descriptive statistics and content analysis method. Research results revealed 32 metaphors and 3 categories about statistics.

Keywords: Statistics, metaphor, content analysis, mathematics pre-service teachers.

1. Introduction

Statistics is an important issue in all areas of daily life. It is concerned with the analysis of data and depends on mathematics and computing. It is essential for economic empowerment and decision-making about the issues such as economy, education, health that effect life (Utts, 2003). Statistical includes five basic knowledge; "knowing why data are needed and how data can be produced, familiarity with descriptive statistics, familiarity with graphical and tabular displays, understanding basic notions of probability, and knowing how statistical conclusions or inferences are reached" (Gal, 2004; Cited in Ozen, 2013: 9). It requires posing a research question, collecting data, analyzing data and interpreting. All of these encourage individuals into a variety of statistical thinking.

The development of the statistical thinking begins in early grades. The necessity of the statistics knowledge in every grade is emphasized by National Council of Teachers of Mathematics (NCTM, 2000). In additionally, the importance of the statistical thinking and applications is increasing in these recent years in Turkey. The reforms in elementary school mathematics education programs have been carried out. Statistical thinking involves the understanding statistical concepts, analyzing the collected data and learning the ways to students by

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in-service teachers (Jacobs, 1999). Teachers play a crucial role in developing students' statistical thought processes (Pfannkuch, 2008). Teachers must be aware of and build on their students' thinking about statistical concepts. Because of that, teachers need to develop their knowledge and skills about statistics and foster their students' statistical abilities. On the other hand, students must construct their own individual meanings for mathematical concepts encountered within classrooms have an impact on the sort of meaning that are constructed (Presmeg, 1992). Students' thinking could be influenced by the metaphors implicit in teachers' presentations of subject matter else. Educators in the fields of mathematics and statistics education have recommended the use of metaphor and other teaching devices. Educators must assistance the construction of richer personal metaphors of students (Groth & Bergner, 2005). Because of that, it is very important that pre-service teachers could learn and teach statistics effectively. Nevertheless, our review of the literature display few different studies (Grant & Nathan, 2008; Groth & Bergner, 2005) have been carried out with pre-service teachers on metaphors about statistics. Grant and Nathan (2008) have been aimed to displays that graduate students use more than one metaphor for confidence limits which one of the implications for the statistical knowledge and applications. Groth and Bergner (2005) have been described personal metaphors of pre-service teachers' for the statistics concept by constructing metaphors for the sample concept and discussed its relationship to their knowledge of the concept. Therefore, it is aimed is to reveal the mathematics pre-service teachers' metaphorical perceptions about statistics in this research. Accordingly, the following research questions have been explored:

1. What are the elementary mathematics pre-service teachers' metaphors about statistics?
2. Under which conceptual categories could the elementary mathematics pre-service teachers' metaphors about statistics be classified when their common features are considered?

2. Methodology

The conceptual categories related to metaphors about statistics have been exerted in this section.

2.1. Research Method

The phenomenology design has been used in this qualitative research. Phenomenology design comprises a suitable context for conceptual research because it focuses on the phenomenon that we recognize but do not have detailed understanding (Yıldırım & Şimşek, 2006).

2.2. Participants

The research has been carried out with total of 62 elementary mathematics pre-service teachers, who were studying as juniors at a public university in Turkey. These volunteered pre-service teachers participated in this research in the spring semester of 2012-2013 academic year.

2.3. Data Collection

Mathematics pre-service teachers were asked to complete the phrases of “Statistics is like.....because.....” to reveal pre-service metaphors about statistics. Pre-service teachers were asked to write their thoughts by focusing on just one metaphor for each concept. Mathematics pre-service teachers were asked not to write their names on their answer sheets to obtain their real feelings and thoughts. It took approximately 15 minutes to complete this phrase about statistics concept.

2.4. Data Analysis

The metaphors developed by the mathematics pre-service teachers were analyzed and interpreted in five steps as; determination of metaphors, classification of metaphors, development of the categories, providing the validity and reliability, transferring data to the computer.

Metaphors developed by mathematics pre-service teachers were listed and coded according to alphabetical order in determination of metaphors step. Metaphors were analyzed to find similarities and common features with other metaphors in classification of metaphors step. Target metaphors were determined by analyzing the connection between the metaphors. In this step, a total of 32 available mental symbols were obtained. Metaphors were analyzed in terms of common characteristics that they had relations with the statistics concept in development of the categories step. In this step, 3 different conceptual categories were created in relation with a particular theme according to any metaphors produced by pre-service teachers’ perspectives. Two different researchers opinions have been applied to confirm whether metaphors under 3 conceptual categories represent in question to any conceptual category or not. These researchers were given metaphors and conceptual category list and matched these metaphors and categories. After that, the matched lists compared with each other revealed by both of the researchers. It has understood that almost all of the metaphors in category lists of these researchers were the same.

3. Findings

The content analysis results that were performed to reveal the mathematics pre-service teachers’ metaphorical perceptions about statistics have been reported in this section.

3.1. Metaphors about Statistics

The elementary mathematics pre-service teachers, who were studying as juniors at a public university in the spring semester of 2012-2013, developed 32 valid metaphors related to statistics as indicated in Table 1.

Table 1. Elementary mathematics pre-service teachers' metaphors about statistics

	Metaphor	f	%		Metaphor	f	%
1	General view	5	8.93	17	Real life	1	1.79
2	Real	5	8.93	18	Gulf	1	1.79
3	Sorting data	5	8.93	19	Sky	1	1.79
4	Puzzle	3	5.36	20	Construction	1	1.79
5	Future	3	5.36	21	Complex skein	1	1.79
6	Maze	3	5.36	22	Classical music	1	1.79
7	Ocean	3	5.36	23	Ships in ocean	1	1.79
8	Analyze	2	3.57	24	Braid	1	1.79
9	Soup	2	3.57	25	Scrip	1	1.79
10	Philosophy	2	3.57	26	Watch	1	1.79
11	Graphic	2	3.57	27	Chess	1	1.79
12	Computer	1	1.79	28	Exam	1	1.79
13	Mountain	1	1.79	29	Question mark	1	1.79
14	Grain of sand	1	1.79	30	Chance game	1	1.79
15	Universe	1	1.79	31	Train	1	1.79
16	Awareness	1	1.79	32	Time	1	1.79

The most repeated metaphors developed by elementary mathematics pre-service teachers are; general view, real, sorting data, puzzle, future, maze and ocean.

3.2. Conceptual Categories related to Metaphors about Statistics

Elementary mathematics pre-service teachers' metaphors about statistics are classified into 3 categories; structure of statistics, solving process and difficulty and complexity of statistics. Structure of statistics category consists of 13 (40.6%) metaphors and 23 pre-service teachers. The most repeated metaphors are; general view, real, analyze and graphic for this first category when considering the frequency distribution of metaphors. Solving process category consists of 6 (18.8%) metaphors and 14 mathematics pre-service teachers. The most repeated metaphors are sorting of statistics, puzzle and future for the solving process category. Similarly,

difficulty and complexity of statistics category consists of 13 (40.6%) metaphors and 19 pre-service teachers and the most repeated metaphors are; maze, ocean, soup and philosophy for the difficulty / complexity of statistics category (Table 2).

Table 2. Mathematics pre-service teachers' metaphors about statistics according to categories

Structure of Statistics			Solving Process			Difficulty / Complexity		
Metaphor	f	%	Metaphor	f	%	Metaphor	f	%
General view	5	21.77	Sorting data	5	35.72	Maze	3	15.80
Real	5	21.77	Puzzle	3	21.43	Ocean	3	15.80
Analyze	2	8.70	Future	3	21.43	Soup	2	10.53
Graphic	2	8.70	Computer	1	7.14	Philosophy	2	10.53
Grain of sand	1	4.34	Complex skein	1	7.14	Mountain	1	5.26
Universe	1	4.34	Chess	1	7.14	Gulf	1	5.26
Construction	1	4.34				Sky	1	5.26
Awareness	1	4.34				Classical music	1	5.26
Real life	1	4.34				Braid	1	5.26
Ships in ocean	1	4.34				Watch	1	5.26
Scrip	1	4.34				Question mark	1	5.26
Exam	1	4.34				Chance game	1	5.26
Train	1	4.34				Time	1	5.26

It was understood that a large part (33.9%) of the metaphors were about the difficulty and complexity of statistics category while many of the metaphors (41.1%) were about the structure of statistics category as indicated in Table 2.

CONCLUSION

This research has examined to reveal the metaphors of elementary mathematics pre-service teachers about statistics. Results have shown that a total of 32 metaphors and 3 categories are determined in order to explain statistics concept. The mathematics pre-service teachers used metaphors related to structure of statistics (40.6%), solving process (18.8%) and difficulty and complexity of statistics (40.6%). In other words, statements emphasized the structure and complexity of statistics in general. Statistics stated as general view, real, analysis, graphic, sorting, puzzle, future, maze, ocean, soup and philosophy in this research. This situation indicates that the statistics concept could not be expressed in a single mental image. Different factors such as instruction of teacher, social environment or individuals' interest could be effective on these individual metaphors of mathematics pre-service teachers. Because of that, teacher educators must be conscious of designing instruction to expand and revise the personal metaphors of pre-service teachers. Teacher educators might encourage pre-service teachers to share their individual metaphors about statistics with one another to motivate them on considering in great detail (Groth & Bergner, 2005). Educators may use more effective activities teaching statistics to their students using metaphors in their courses and encourage them to learn about everyday statistics through performance tasks.

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4th International Conference on New Horizons in Education

May 28th world play day activities in Turkey since 2010

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Abstract

The idea of "World Play Day" came out first in the meeting of 8th International Toy Library Association (ITLA) in Tokyo in 1999 and today and every year, it is celebrated by various countries all around the world in May 28th. World Play Day activities have been celebrated in Turkey since 2010. The aim of this research is to explain activities World Play Day in Turkey since 2010. For examples: 1.Conference, Panel, Symposium about World Play Day, 2. Parade with theme 3.World Play Day Message between 2010-2012, 4. Playing in play fields.

Keywords: May 28th World Play Day (WPD) of ITLA, World Play Day in Turkey.

1. INTRODUCTION

The idea of "World Play Day" came out first in the meeting (8th International Toy Library Conference-Japan) of International Toy Library Association (ITLA) in Tokyo in 1999 and today and every year, it is celebrated by various countries all around the world in May 28th. The mother and the creator/founder of the idea of "World Play Day" is Dr. Freda Kim from South Korea. Also, International Toy Library Association (ITLA) asks United Nations for this day as being a formal "International World Play Day". Since 1999, it has been expressed that about 30 countries who have toy libraries is are celebrating "World Play Day" (<http://www.docstoc.com/docs/19839442/world-play-day-concept>). Today, and through the entire week, playing activities are being done in various countries. Everybody including the children, the young, the parents, grandparents, the teachers, the disabled and all the people from all ages can join these activities.

Dr. Freda Kim writes a "World Play Day Message" and sends it to all countries who celebrate this day. "World Play Day Song" is also written by Dr. Freda Kim to make it sung today (http://www.itla-toylibraries.org/pages/world_play_day/).

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1.1. The importance and meaning of “world play day” activity for Turkey

1.1.1. To support the execution of article 31(child rights contract) as marmara university

Article 31:

1.Member Countries give the right to the child to rest, spend spare time, play and do activities suitable to his/her age and join freely the cultural and art life.

2.Member Counties know the right of the child to join fully the cultural and art life and promote the suitable and equal opportunities on about art and culture to make them spend spare time and rest.
<http://www.istabip.org.tr/icerik/cocuk-haklari-beyannamesi/>.

To support as Marmara University and enable the children to join this activities for the execution of Article 31 in Child Rights Contract which Turkey also signed and accepted in 1989 is very important on preparing activities suitable to the children’s ages and giving them the right to join freely to this activities (Kamaraj, 2012a).

1.1.2. To support the progress of being a “child-friendly” university internationally of marmara university

It is very important to discuss “the importance of playing” in academic meetings (panel, conference etc.) in order to promote children to join democratically to “World Play Day”, to use our sources for children as Marmara University, Kadikoy Municipality, International Child Centers, Unesco and other universities, to work in collaborative Project with national or international participants (Kamaraj, 2012a).

1.1.3. To provide the prospective teachers with play culture

This activity in Marmara University in which being just a participant is important as well as being an active participant gives the prospective teachers the responsibility to live and celebrate it with their own students in their own institution and to prepare it. It is thought that this activity has a big role in creating “the play culture” for prospective teachers. However, play culture can be part of our life only if actively involved (Kamaraj, 2012a).

1.1.4. To celebrate it every year by traditionalizing it in marmara university

World Play Day is celebrated all over the world in May 28th. First time in Turkey in Marmara University, Assist. Prof. Dr. Isik Kamaraj as the head of it, this activity has been celebrated since 2010 and being celebrated for 3 years to make it traditionalized every year by adding new activities. In 2010, the activity was 1-day-long but in the following years, it became 2-day-long. World Play Day Celebration Activity was starting always academic activity: 1. Conference, Symposium, Panel about World Play Day”, 2. Parade with theme, 3. World Play Day Message, 4. World Play Day Card, 4. Playing in play fields, 5. Closing ceremony (Kamaraj, 2012a).

1.1.5. To raise awareness in the community with world play day theme headlines decided every year

In World Play Day, a new theme is determined every year. The theme is decided considering the researches done in Turkey and all over the world and the reports from various institutions and establishments. (E.g. IPA, ICCP). The aim is to focus on this concepts and raise the communal awareness. For the first year (2010), the theme is “We walk to play”, second year (2011) “Our traditional plays and toys and the third year (2012) “outdoor plays and play grounds” (Kamaraj, 2012a).

1.1.6. Celebrating world play day with large masses to spread it to whole city (istanbul) and Turkey.

Though the activity of World Play Day is started in Marmara University, it can be celebrated with the large masses, too. For example, students from other campuses can join the celebrations. Also, schools (pre-school and elementary schools, high schools, vocational schools students, teachers and the parents) can join Marmara University activities or make their own activity for this day. Again the other campuses can celebrate this day in their own area. Children, their teachers and their parents from special education centers can join. Toy Museums may prepare “theme trips” to their visitors. It can also be celebrated in Toy Libraries participated by the children and their parents. Local government can prepare play fields in squares and seaside to get the attention of every part of the community (Kamaraj, 2012a).

1.1.7. To foster international institutions and establishments to celebrate this day

Turkey who is among the countries signing the Child Rights Contract in 1989 is responsible to fulfil the he responsibility of this contract. If article 31 which is in Child Rights Contact is adopted and celebrated in various activities (panel, conference, exhibits, workshops) by Ministry of Education, Ministry of Culture, Social Services and Child Protection Institution, Unicef, Unesco, education faculties of universities, toy libraries, child libraries, local governments, non-governmental organizations, Turkey will achieve its own legitimate responsibility (Kamaraj, 2012a).

1.1.8. To make Turkey be one of the countries celebrating this day internationally

Dr. Freda Kim, the mother of idea of World Play Day said in Singapore on 28 May 2009, in her speech, “World Play Day Forum”, today is being celebrated in Australia, Austria, Belgium, Brazil, Croatia, France, Germany, Hungary, India, Israel, Italy, Japan, Korea, Malaysia, Mexico, Nigeria, Romania, Russia, Singapore, South Africa, Spain, Sweden, Switzerland, Turkey, Uganda, England and USA (Kim, 2009). Turkey’s being among the countries celebrating this day has a very big role on this activity being celebrated internationally (Kamaraj, 2012a).

1.1.9. To foster the celebration of “national play day”.

World Play Day activity is an international activity celebrated in various countries but “National Play Day Activity” can also be arranged. Each city can organize celebration locally. Toys from every city’s history can be played with the participation of children, the parents and educators in squares and outdoor. By this way, we can re-learn our own culture with our own plays and we maintain our own culture with living and making it lived (Kamaraj, 2012a).

2. The 1st world play day (wpd) in Turkey, 28th may 2010

The First World Play Day was celebrated at Marmara University, Atatürk Education Faculty Early Childhood Education Department in Istanbul/Turkey on 28 May 2010. World Play Day activities has gone all day. Firstly Dr. Isik Kamaraj was made “World Play Day Speech” to early childhood education department university students and listened to the World Play Day song. The Celebration of The First World Play Day in Turkey: Theme was “We walk to play”, 1. Conference “I. World Play Day”, 2. Parade with theme, “We walk to play”, 3. World Play Day Message-2010, 4. Playing in play fields, 5. Closing ceremony.

Then, we had a “toy parade” participating with 19 early childhood education department university students and the accompany of preschool educationist my twin sister. We had 43 pupils as voluntary for World Play Day

events. Moreover, our art department university students made a poster: “We are walking for play” and a pamphlet to hand out during the toy parade. I put on a Snow White costume for the parade. My students brought toys such as Eyüp toys (Turkish traditional toys), balls, and dominoes. The parade visited the faculty dean and deputies also university rector building. My students demonstrated how to play with the toys during the visits. We presented our faculty dean and deputies with gifts of toys. I asked them which were their best toys and games when they were children. In the afternoon, we decorated the garden with balloons and red paper heart with the help of students. My students showed games to other students in the afternoon. They showed traditional Turkish games such as handkerchief catch, corner catch, istop game, Eyüp toys, rope and games found all over the world such as ludo, jenga, dominos, puzzles, scrabble, blocks etc. Our students had a t-shirt done to put on that day. We gave to students a participation certificate. The day was joyful, enthusiastic, exciting and happy for all participants, because, this is the first celebration in our country (Kamaraj, 2010, p. 13).

3. The 2nd world play day (wpd) in Turkey, 25th-26th of may 2011

We celebrated WPD, May of 25-26 2011 for two days at Marmara University. Our main topic was “Our Traditional Toys and Games” in 2011 about WPD. We celebrated the day based on this main topic. The Celebration of The Second World Play Day in Turkey: Theme was “Our Traditional Plays and Toys” 25-26 May 2011, 1. Panel “II. World Play Day”, 2. Parade with theme “Our Traditional Plays and Toys”, 3. World Play Day Message-2011, 4. Playing in play fields, 5. Closing ceremony (Kamaraj, 2011a, p.10; Kamaraj, 2011b).

Firstly, we made a meeting with two groups of my university students (Both Early Childhood Education Department and Special Needs of Children’s Department) at the beginning of the term. Meanwhile, one of my colleagues in early childhood department was preparing “The Turkish Traditional Eyüp Toys” with participation of all students in WPD. My other colleague was preparing “Traditional Games” with the same department. And another colleague of mine from the art faculty was preparing “statue of traditional toy which is name Cambaz”. The other lecturer made “World Play Day Pamphlet”. We wrote “The message of WPD in 2011” to deliver to the students (Kamaraj, 2011a, p.10; Kamaraj, 2011b).

We prepared WPD Panel which is name “traditional games and toys” in the morning May of 26, 2011. Four colleagues made presentations about the importance of “Traditional Toys and Games” in WPD Panel. The names of our presentations were “The Importance of World Play Day for Turkey”, “Traditional Games in World Play Day”, “Traditional Toys in World Play Day” and “The Effect to Child Culture of The World Play Day”. In the afternoon, we made “Eyüp Toy’s Parade” with the participation of Early Childhood Department Students and Special Needs of Children Department students as every year in our university campus. We had 23 pupils as voluntary for World Play Day events. All students said “tongue twister” loudly during traditional toys parade. All of my students dressed a special t-shirt which was prepared for that day. The students separated into five groups to walk for toy parade. Two groups carried statue during toy parade. Also, all students carried with by yourself made Eyüp toys. After, we went on celebrating the day with students. We prepared “play corners” about Turkish traditional games in the garden. The university students participated to play with World Play Day. The leader students of groups showed other students “how to play these traditional games”. Then, we asked for write of their feelings from participating students on paper red heart. The participants wrote for example: “The World Play Week, hmmm reminded me my childhood and I felt so happy. Jumping rope, dominoes to bring us comfort and joy”. “I am so delight and also I am looking forward this day”. “Super”, “After seventeen years, you reminded me my childhood “I went back to my childhood”. In the afternoon, we made closing ceremony

with the participants from our department. We gave certificate of attendance to students and one candy on 26 May as a gift (Kamaraj, 2011a, p.10; Kamaraj, 2011b).

4. The 3th world play day (wpd) in Turkey, 17th-18th of may 2012

We celebrated WPD, 17th-18th of May, for two days at Marmara University/Istanbul/Turkey. Our main topic was “Outdoor Play and Outdoor Playground” in 2012 about WPD. We celebrated the day based on this main topic. The Celebration Program was The Third World Play Day in Turkey: Theme was Outdoor Plays and Play Fields 17-18 May 2012, 1. Symposium “III. World Play Day”, 2. Parade with theme “Outdoor Plays and Play Fields”, 3. World Play Day Message-2012, 4. World Play Day Card, 5. Playing in play fields, 6. Conference “Frederich Froebel: Outdoor Play”, 7. Closing Ceremony (Kamaraj, 2012b).

Firstly, we made a meeting with two groups of my university students (both Early Childhood Education Department and Special Needs of Children’s Department) at the beginning of the term. Every student groups was prepared “outdoor play area” and also their “play materials” to use that day. We had 41 pupils as voluntary for World Play Day events. Meanwhile, one of my colleagues in art department made “The Third World Play Day Pamphlet”. We wrote “The message of WPD in 2012” to deliver to the students in our campus. We prepared WPD Symposium which was name “Outdoor Play and Outdoor Playground” May of 17th, 2012. After the symposium one of my colleagues and his students from art department was given concert which is name “Toy Symphony” prepared by made Leopold Mozart. All audience was effected that presented works. The next day, we started “our traditional parade” with the participation of Early Childhood Department students and Special Needs of Children Department students as every year in our university campus. All of my students dressed a special t-shirt which was prepared for that day. The students separated into nine groups to walk for toy parade. Every group carried with by you made “outdoor play materials” during toy parade. All students said “tongue twister” loudly during traditional toys parade. After parade, we came back to outdoor playgrounds. Our students prepared “outdoor playgrounds” in our department garden. We had seven outdoor play corner: 1. kite making, finger print, 2. swing, snake and ladder, 3. ludo and peg top, 4. toys car and mangala game, 5. mikado sticks and, hula-hoop, 6. fishing, 7. target area, circle. At the 11.00, one of kindergarten schools with students came to participate our department garden to play at that day. There were almost 50 kindergarten children with their parents also three preschool teachers. University students who were preschool department also special needs of children’s department thought how to play this outdoor playground. It was so joyful day for children’s also their parents. Then, we asked for write of their feelings from participating childrens, parents and university students on red heart paper. The participants wrote for example: “We thank all people who organized this nice activity as Primary School, class ‘Bulutlar’. You have us to go back to our childhood. (As mothers)”, “The child slept in my heart awoke. Games, games and games... Also, that day one of my students department of special needs of children and I presented conference which was named “Frobel’s Gifts and Outdoor Play”. In the afternoon, we made closing ceremony with the participants from our department. We gave certificates of attendance to students and one cock candy on 18 May as a gift (Kamaraj, 2012b).

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4th International Conference on New Horizons in Education

Media and television in child education

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Abstract

The level of children's addiction to media and television, more precisely formation of using these habits should only be provided by family. Getting children adopt television habit sufficiently and as it should be by the collaboration of parents and teachers will be helpful for keeping children away from television's detrimental effects.

Key Words: Child , Media, Television

1. INTRODUCTION

Mass media has shaping and relatively guiding effect on social life. Communication instruments' role and efficiency have expanded in a growing spiral since they appeared. They have been nearly society's eyes to see, ears to hear and tongue to say something.

Media has a big percentage in society's people affecting each other in large scale. Society's behavioural patterns, values and way of thinking are gained with the help of mass media and it helps internalising what learnt. Power of mass media is based on ability of transmitting same message to different people in a great number and in different messages.

2. Process of Child's Development

It's possible to say that children's value is one of the signals of societies' development level in today's world. Therefore child and child's development appear to be more and more emphasized terms inasmuch as child is accepted as one of the most valued properties that will ensure societies' persistence and improvement, convey the culture heritage to following generations. Childhood is the first scene which induct man into humanity and an important environment in which man's abilities and weaknesses are improved slowly yet clearly. (Yavuzer,1996:36)

Child is not a living thing that can be formed as required or a sample of minituarized adult. Perception and explication of his environment is completely different. Child is addicted, selfish and behaves without knowing how to be patient. His emotions have ebbs and flows, his reactions are acute. Child is a living that learns by trial-error and asking questions constantly. By this way; he apprehends true-false terms and

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improves a superego, a conscience that controls himself. Accordingly, Françoise Dolto says " A child subject, seemed as a potential to be enhanced, is an energy that will individualised instantly." Dynamism that will be provided is to form child through the future. (Işık,2007)

Child is affected by the cultural, social and economical structure of the current era. Thus there is a childhood understanding which is described and formed over again in every social structure. Nowadays, dynamism of globalization brings along a new period in which many understandings are formed about childhood over again. (Güler,1991:62)

This understanding makes communication, the most important item of our era, indispensable. The social and individual importance of communication, making contacts successfully is an essential necessity for society and individual. Limits should be pushed into contribution of child's socialization and teaching how to make communication via communication instruments in their inner circles such as children themselves, their families, friends, teachers and in the same society but the other ones who live in the distant places.

The reality of there is not only a factor but also there are many factors in individuals personality development especially there should be aural, visual, tactual and social stimuli for improvement of children's exploring and learning abilities designates television's important role in our lives. Television is one of the factors that takes part in process of learning,based on observation and repetition. In this sense, the ability of television sending aural and visual stimuli to many people increases effect level and offers a new structure that develops child's understanding.

(Yavuzer,1986)

3. Media and Television

The term "media" which is used as "mass medium" is derived from Latin "medium" term and means tool, central, atmosphere,mediator.(Nalçaoğlu,2003:51) At the beginning of 20th Century, television became the most important mass media that change an average one's life as telephone. The essential tool of our homes; black box; our electronical caretaker prepossess our minds by question of what kind of a situation do we come across if it is analysed in terms of children education. Television is a media that not only can be used as socialisation corporation instead of family but also takes family in the centre of nature as context. Hence the effects of the television upon family members especially children is questioned.(Batmaz ve Aksoy,1995) With the advent of television bounds and geographical constraints are disappeared and in one sense word has become a small village. For this reason, an event that is occurred anywhere in the world can become a current issue in a while and an innovation can widespread quickly through the world.

As well as the upsides of television, it can affect children negatively by providing transformation of unnecessary and harmful information quickly.This situation can be considered as "television paradox" as an attribution to "internet paradox" that is conceptualized by Karaut vd. the good intentional use of mass media helps children about their socialization, taking advantage of different and rapid sources and contributes to stay

away from monotype education for individual personality and liberalization of education and management. (Tuncer, Yalçın, 1999;27-34)

Çakmaklı expresses that television broadcasts have specific purposes and in accordance with these purposes television programmes have main types such as news, education, culture, advertisement. This classification generally indicates the reality of the socio-economic development of countries will change according to their development and underdevelopment.

Consequently television finds the materials that reflects a society's culture and becomes a part of it at the same time. These materials provides culture's perpetuity and improves mass culture of it. Television informs about which elements of a society will maintain and which of them will change. Concordantly our habits, speaking manners, relations with society changes to the extent of images and messages that television conveys us. Maybe because we find the charming and delighted life in it or it reflects the life we live in, we live as addicted to it.(Işık,2007)

Television has a position that pictures the strange world to us from our homes we seize intimately. People watch television programmes which includes events that are related to their lives.

The positions of television receivers at homes plays an important role in programmes ratings. (Gönenç,2005) The people's interests in television broadcasts vary according to their educational background. As the cultural level rises, the amount of information they get from broadcasts decreases. Nowadays, watching television's become the prior activity for all people who live all around the world.(Serhatlıoğlu,2006)

On the other hand, unnecessary and plentiful usage of mass media affects children's physical and mental development negatively. Heim and the others claim in their experimental studies that media affects socialization and social interaction negatively. (Heim ve Diğerleri,2007;52) As for Morgon and Gross prove that there is an inverse propotion between advanced television watching and school success. (Heim ve Diğerleri,2007; 52) Similar epistemological researches indicates watching television decreases physical activities and affect especially mental health negatively. (Heim ve Diğerleri,2007;52) According to Yavuzer(1986) television affects negatively child's personality development through decreasing mental images formation, capacity that is necessary for narration formation with reference to written expression by means of weakening language acquisition.

Televiwers' age is another factor that affects television's influence. Even the reasons using television of children and adults are different, everything is accessible for everyone on screen. For this reason, television has an affect which states child's attitude and behaviours via not only children programmes but also programmes, news and advertisements for adults. Along with not knowing the affects of programme that child watches on child development, it can not be estimated how he perceives and understands the messages from that programme.(Tekinalp,1990) Therefore television producers produces their programmes by specifying their televiwers' cultural levels, life styles and their interets.

Children are exposed to numerous graphic violence on television everyday. According to a research that is done in USA, children watch more than 1000 graphic violence every year in America. As to Tuncer and Yalçın's research from Hacettepe University, 31% of children spend at least 4 hours on weekdays by watching television, this ratio increases up to 71.7% at the weekends in Turkey. (Tuncer, Yalçın, 1999:27-34) This state makes children more aggressive in their social lives. (Zolten, 2006)

The tendency of children acting like cartoon characters that we've come across on news constantly in recent years is closely related to the high level of environmental exposure. Girls' dressing up like Barbie dolls or boys' metaphysical behaviours like Pokemon, He-Man, Spider Man can be examples of this situation. As well as affecting children about increasing tendency to violence, television causes children to have negative role models. Besides its psychological effects on children it has been revealed that television affects them physically too. Especially, obesity is one of those remarkable ones in this respect recently. (Turam, 1996)

Because spending time in front of television leads children to do less physical activity. (Zolten, 2006) The one who eats by watching television tries to catch programme by eating more quickly. Furthermore, foodstuff products that take part in advertisements aimed at children are rich in calories matters more at this point. (Zolten, 2006)

However, it is a scientific fact that making television useful is on the hands of parents. The reality of watching television with parents can be useful is showed up by some researches. (Heim ve Diğerleri, 2007; 52) Especially, the control of broadcasts that are harmful for children's physical and mental health is notably important. Children believe that everything is normal on tv and is affected negatively. Television programmes affect children physically, socially and psychologically and lead them into an anxiety that even the adults can handle with difficulty. (Işık, 2007)

Turam (1996) puts emphasis on that since the children don't have worldview yet, it is possible to get one for them by television which is a close factor to them and claims that since they don't have personal experiences, they don't have the ability to question what they watch and accordingly they are exposed to television's effects more than adults.

In today's world which is considered as technological era, there are national and international legal arrangements to keep children away from television's negative effects. First of these; "Convention on the Rights of the Child." It came into force on 2 September 1990. According to aforesaid convention; media companies can not abuse children's fundamental rights and obligations. (Convention on the Rights of the Child, 1990) This convention came into force on 9 December 1994 and at the 17th clause of it has been foreseen that mass medium's studies about children's mental and physical development should be promoted. (Conventions on the Rights of the Child, 1990)

Republic of Turkey made a stride with 41th the clause, entitled as "protection of family", ; "Every child has right to take advantage of protection and nursing, unless it is contrary to his high benefit, to contact personally

and directly with his parents and to maintain this relation. Government takes precautions to protect children against all kind of abuse and violence."(T.C Anayasası,1982) in it's constitution to prevent children from every kind of abuse. At this point, the studies are done to protect children for communication spaces that can be accessible easily and abuse-liable such as television , internet.

When we think about all, it is obvious that regardless of how educational television programmes are, they are harmful physically and psychologically for children especially under the age of 3 years. If we consider that we live in technological era, the importance of children channels are undeniable.

4. Result and Suggestions

The era that we live in is called as communication and media era. No one can isolate himself from the era's requirements. Every child faces with media as of he comes into the world. If we suppose that every house has 1 - 2 television, we learn that television is as important as child's parents and teachers about forming of children. Although media and television can be a tool that helps child's development, supports him, enriches his learning environment and stimuli, it can also be a phenomenon that keeps child away him from his socialization competences and leads him to have a low self- esteem.

It is the biggest mistake to leave child in front of the television indefensible and put it in the centre of his life for spare times. Leaving child to electronic carer while doing daily chores is another mistake that mothers do. Directing children reading, doing physical activities and to social circle will be beneficial for their development. The time that children spends in front of tv should be limited during both pre-school and primary education period.

Channel managers and producers play an important role as well as that parent- teacher association plays. They should pay attention to the programmes that will provide children to whom we will resign our future to be healthy and conscious during their development. If necessary broadcasting programmes that are prepared under the conditions of pedagogue should be compulsory. Instead of ideological, biased programmes that will do harm children's mental health, it shouldn't be utopic to broadcast programmes in accordance with strategic objectives that can go paralell with training activities.

The thing that should not be forgotten is; television is an activity that passivates child and keeps him away from interaction. Even if it includes teaching programmes after a while it prevents child from thinking and makes him a direct receiver. Child should communicate with his parents closely and live his emotional development about childhood. While preparing educational children programmes the sound, image, speech, features of effects should be controlled and the things that disturbs children's senses should be avoided.

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4th International Conference on New Horizons in Education

Mentoring new faculty

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Abstract

According to an AACN Press Release 9-2010, the faculty vacancy rate continues to climb. Currently at a rate of 6.9%, the nurse faculty vacancies will continue to climb over the next ten years. Greater than 90% of these vacancies either prefer or require a doctoral degree and unfortunately, there are a limited number of doctoral prepared nurses. Along with the lack of doctoral, prepare nurses schools of nursing also have difficulty competing with healthcare and research organizations that can provide a limited pool of doctoral prepared nurses with higher salaries and benefits. Schools of nursing are also facing the impact of the nation's economic situation and with budget cuts and hiring freezes are not able to provide nurse faculty for their increasing enrollments. According to an AACN Press Release 9-2010, the faculty vacancy rate continues to climb. Garbee & Killackey 2008 article: A recent study investigating the variables for nurse faculty intent to stay employed in academia concluded that years 1-3 are critical for retention methods and interventions. In fact, nurse faculty that were mentored or had "peer- support" and were doctoral prepared were the most committed to working in academia. It has been stated in numerous research Studies regarding nurse faculty, mentoring enables the novice nurse faculty member to balance work and life effectively and remain satisfied in an academic role. Race and Skees article 2010: Race and Skees noted several challenges with mentoring novice faculty; time management, toxic mentoring, mentor-mentee mismatches and variations in learning needs can poorly influence the mentor/mentee relationship and novice faculty intent to stay in academia. In this article, the authors conclude that an individual approach is necessary and that each mentoring relationship needs to be well planned and individualized to be successful. The lack of nurse faculty is directly affecting that demand for RN, and in return, we will be unable to meet the greying nations healthcare needs because of a lack of nurses. Novice nurse faculty face several new stressors when entering academia. First is the change of role and autonomy that is often a new experience for nurses. Students come with all types of challenges: from the student with personal problems to the behaviour of students within the classroom setting. Learning to manage the challenges of students can become extremely stressful. The entire academic environment can be a cultural shock for some novice faculty. For example learning the "academic pace" when one is used to the pace of a hospital environment can become frustrating and challenging for many. A formal mentoring program is the answer to success. Recruitment of qualified nursing professors and retention of these individuals is a hot topic.

Keywords: Mentoring; Novice; New Faculty; Patricia Benner

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INTRODUCTION

Where has all of the nursing faculty gone? According to an AACN Press Release 9-2010 the faculty vacancy rate continues to climb, currently at a rate of 6.9%; the nurse faculty vacancies will continue to climb over the next ten years. Greater than 90% of these vacancies either prefer or require a doctoral degree and unfortunately, there are a limited number of doctoral prepared nurses. Along with the lack of doctoral, prepare nurses schools of nursing also have difficulty competing with healthcare and research organizations that can provide a limited pool of doctoral prepared nurses with higher salaries and benefits. Schools of nursing are also facing the impact of the nation's economic situation and with budget cuts and hiring freezes, they are not able to provide nurse faculty for their increasing enrollment.

What we do know is that it is estimated that nationally by 2020, healthcare organizations will face a shortage of one million nurses (AACN, 2012). The Obama Care, Patient Protection and Affordable Care Act, will impact nursing care and nursing retention. Millions of currently uninsured Americans will gain health insurance coverage throughout the next decade and by 2016, it is estimated that 32 million are expected to have healthcare insurance. In 2021, is estimated that 34 million people will have healthcare insurance. More people with insurance will increase the demand for health care, which equals the need for more nurses, which in turn equals the need for more nursing faculty. According to AACN's report on 2011-2012 Enrollment and Graduations in Baccalaureate and Graduate Programs in Nursing, U.S. nursing schools turned away 75,587 qualified applicants from baccalaureate and graduate nursing programs in 2011 due to an insufficient number of faculty, clinical sites, classroom space, clinical preceptors, and budget constraints. Almost two-thirds of the nursing schools responding to the survey pointed to faculty shortages as a reason for not accepting all qualified applicants into entry-level baccalaureate programs.

According to a Special Survey on Vacant Faculty Positions released by AACN in October 2012, a total of 1,181 faculty vacancies were identified in a survey of 662 nursing schools with baccalaureate and/or graduate programs across the country (78.9% response rate). The factors that contribute to the nursing faculty shortage includes: aging, lack of degrees, money, lack of support, and the hours spent outside of the classroom (academia requirements). According to AACN's report on 2010-2011 Salaries of Instructional and Administrative Nursing Faculty in Baccalaureate and Graduate Programs in Nursing, the average ages of doctorally-prepared nurse faculty holding the ranks of professor, associate professor, and assistant professor were 60.5, 57.1, and 51.5 years, respectively. For master's degree-prepared nurse faculty, the average ages for professors, associate professors, and assistant professors were 57.7, 56.4 and 50.9 years, respectively. (AACN, 2012). As the baby boomer generation is preparing for retirement this will also lead into the issue of lack of nursing faculty.

The other issue is the lack of salary compensation. According to the AACN 2011 March report, the higher compensation in hospitals and other healthcare organizations lure nurse educators away from teaching. According to the American Academy of Nurse Practitioners, the average salary of a nurse practitioner, across settings and specialties, is \$91,310. By contrast, AACN reported in March 2011 that master's prepared faculty earned an annual average salary of \$72,028. However this salary reported is high compared to salaries listed in the higher education academia annually report.

Stress factors also impact retention of the novice faculty member. Novice nurse faculty faces several new stressors when entering academia. First is the change of role and autonomy that is often a new experience for nurses. Students come with all types of challenges: from the student with personal problems to the behaviour of students within the classroom setting, and learning to manage the challenges of students can become extremely

stressful. In many cases, student related stressors that are new to novice nurse faculty are mostly related to the consumer expectation of this generation of college students. This generation feels that they are paying you for a service and degree. At times they feel and state that if they are having difficulty and failing than it is the faculty fault. This generation has lost the accountability factor. Learning styles differ across each generation span. Managing and motivating individuals of different generations are all about gaining respect for their unique attributes (Mitchell, 2012). Along with the consumer attitude and new technologies, the classroom experience can be a shock to novice faculty. Not knowing how to manage a classroom can lead to awful experiences with challenging students. Then there are the students with personal baggage the ones that always seem to have an issue or personal crisis at hand. Novice faculty may not be aware of the resources available for these students and may attempt to assist the students in need causing more work related strain.

The entire academic environment can be culture shock for some novice faculty. For example learning the “academic pace” when one is used to the pace of a hospital environment can become frustrating and challenging for many of us. The academic setting is an entirely different environment than the hospital. For many novice faculties learning the organizational structure and who really has the power can be challenging at time. The academic pace, when in comparison to the hospital pace can be shocking and almost impossible to handle for some. Although most are nurses are accustom to constant change with the external variables (like the economy) influence nursing education, uncertainly related to the job and job expectations can become stressful to the novice faculty.

Then there is the unwritten “closed door” policy that novice faculty will face in many schools of nursing. Nothing can be more stressful and frustration than asking and searching for help in a new environment than having the door continuously closed in your face. The coldness and lack of some faculty to share or to assist novice faculty will continue to hinder retention in nursing education. Finding the right environment is another factor that can be stressful for the novice faculty member. Many novice faculties may be unaware that not all school of nursing has the same mission or agenda. All schools of nursing should offer mentoring for the novice faculty. Mentoring can assist with questions, concerns, support and retain the novice faculty member. According to Patricia Benner (1984), “very few people ever make it along. We all need someone to lead the way, to show us the ropes, to tell us the norms, to encourage, support, and make it a little easier for us.” Mentoring is a fundamental form of human development in which one person invests time, energy, and personal knowledge to assist another person in his or her development and growth. Benner uses the Dreyfus’s Model, which is based on the idea that individuals must pass through five stages. Faculty with a mentor will be able to advance from one stage to the next with a smooth transition.

A mentor needs to be able to reflect on both experiences and abilities. Characteristics of mentoring can include willingness to share knowledge (correct policy & procedures), competency in their own area, positive attitude (not typical considering the gossip), and allow the novice nurse to grow and develop into an advanced beginner. Mentoring benefits include: higher levels of job satisfaction, organizational commitment, recognized organizational norms and expectations, and positive student outcomes. A benefit for a faculty mentor includes career revitalization, social recognition, mutual feelings of satisfaction, accomplishment, companionship, professional and organizational success. Benefits to a novice faculty member includes: feelings of empowerment, sense of belonging to the profession, promotion of self-esteem, confidence in the workplace, intellectual stimulation, knowledge sharing, and professional and organizational success. Mentoring is the missing puzzle piece to recruiting and retention of nursing faculty.

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Mentors' and novices' perception of teachers' professional career start in Slovakia and in the Czech Republic

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Abstract

The paper tackles the question: how do Slovak and Czech mentors and novices perceive the early start of teachers' professional careers? Its aim is to present a clear overview of the current state of novices' induction into their teaching careers and its legislative aspects. Besides this, it presents the data and results of research that was carried out in 2012 in Slovakia and is currently being carried out in the Czech Republic. Respondents to the questionnaire were both novices and mentors, but to have a deeper insight into the issue semi-structured interviews with selected respondents were completed as well.

Keywords: teacher; novice teacher; mentor; induction period; expectations and needs of novice teachers

Introduction

The question of mentors and novice teachers is a topic that is equally being dealt with in Slovakia and the Czech Republic but is not being solved in its entirety. It seems that in Slovakia they have more systemic solutions for the induction of novices into teaching. In 1996 they codified this issue into legislation (§4) when Decree N°42 concerning the Further Education of Teachers was passed. Currently Act N°317/2009 concerning Teachers and Special Employees is valid and as for novices, they are addressed in §28. In 2009 also the Decree N° 445/2009 about continuous education, credits and attestations of teachers and other school staff as well as Guideline N° 19/2009-R concerning a Adaptation Education Framework Programme were introduced. The official status of the mentoring of novices and introducing them into teaching practice is indisputable and a highly desirable tool. In the abovementioned act the position of a mentor is briefly stated; something is said about their function and role and manner of nomination. As for this career position, it is defined as follows: *a mentor or special employee is a person who performs specific activities together with teaching and who is responsible for the induction period of a novice teacher, which (s)he closely and systematically monitors.* This position may be entrusted to an independent teacher or a special employee with the first attestation (In Slovakia there is a system of exams for promotion of teachers which are called *Attestations*, the first one can be passed after 5 years of teaching practice.). While some specific activities and duties for this position are partially stated in the act, the way in which a mentor should be trained for this position is not stated. It is assumed that several years of teaching at school and the first attestation is sufficient preparation for this role. In the Czech

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Republic one of the attempts to systemically solve this issue was the issuing of Decree N°79 of the Ministry of Education of the Czechoslovak Socialist Republic on 26 October 1977 concerning the Unified System of Further Education of Teachers and Other Teaching Staff at Primary, Secondary and Tertiary Schools. Mentoring of novices was dealt with in §3, which precisely stated that each novice had to have an assigned mentor. It also stated who was responsible for their nomination, what their responsibilities were, who observed and evaluated the first steps of a novice at school and how it should be done. This decree, however, had an obvious ideological subtext. Nevertheless, the systemic measures of the decree, which are currently absent at all levels of schooling in the Czech Republic, are beyond doubt. The help and support to novices is nowadays provided according to personal discretion and the decision of headmasters in different schools.

As for the supporting materials for novice teachers, in Slovakia the help for novices and their mentors is mostly provided by Methodology and Educational Centres (so called MPC – Metodicko-pedagogické centrum) in all regional cities (9) all over Slovakia. These centres publish special publications and display some current useful information on their web-pages. In the Czech Republic one can find *Advice for Novices* e.g. at the portal www.rvp.cz (see <http://rvp.cz/informace/rady-pro-zacinajici-ucitele>). There are also other possibilities which different universities offer, as for example, a methodology course for supervising teachers of English. This one-year course is for teachers of English who work or would like to work as supervising teachers of English for would-be-teachers during their teaching practice at schools. The course is accredited by the Ministry of Education, Youth and Physical Education as one of the LLL/CPD courses to deepen teachers' professional qualification. The course originated within the project DOVU (Další odborné vzdělávání učitelů – Further professional education of teachers) and was developed by the Faculty of Education, Palacky University in Olomouc. Other courses are offered by the National Institute for Further Education (NIDV - Národní institut pro další vzdělávání) both for novice teachers to help them with adaptation at the beginning of their teaching career and for school managers organising the induction period for novices to upgrade their training. Furthermore, mentoring is the subject of discussion and a solution within the development of quality standards for the teaching profession too. As supportive material it is also possible to use the book *První kroky učitele* (First Steps of a Teacher) written by Podlahová (2004).

In Slovakia as well as in the Czech Republic the research connected with the subject – primary and lower secondary school teachers and their problems during the first year(s) at school – was carried out, for example, by Černotová (2010), Majerová (2011), Šimoník (1994) and Prokešová (2000), who together with their teams carried out quite wide research in this field. Their research was based on the assumption that the complicated entry into teaching at primary and lower secondary schools for the majority of graduates from teacher training programmes was caused among other things by the fact that they are confronted with three relatively autonomous but long-established concepts. These are teacher training institutions' visions of real teaching practice, ideas and expectations of a specific school and the individual expectations of a novice teacher, and his/her idea of successful practice of the profession. The answers of respondents have shown that the least frequent source of subjectively perceived failures is a lack of expertise or mismanagement of basic teaching skills. However, they are taken by surprise by the fact that there are high demands on educational and social competences. They feel "unprepared for the reality" of "such intense and constant contact with children", "contempt of parents for opinions, views and advice of teachers", etc. In addition, novice teachers according to this survey very much prefer experiencing empathic contact with colleagues and a sense of their acceptance by colleague-teachers. The same study also shows that induction into teaching would be welcomed by 71% of newly qualified teachers who have had two years of experience at schools and 77.5% of teacher training programme graduates who are just about to start their teaching career. According to respondents the most important criterion

for mentors prior to the professional aspects was their human qualities such as willingness to cooperate, empathy etc. (Prokešová, 2000).

Anyway, many experts, who from different points of view express their thoughts and findings about specific features resulting from the modification of the social and professional status of a teacher during his/her teaching career (e.g. Kolláriková, 1993; Kasáčová, 2002), as well as those who describe the analysis and classification of professional competences of teachers, their acquisition and development of teaching skills (e.g. Spilková, 1994; Vašutová, 2001; Belz & Siegrist, 2001; Švec & Trna, 1999; Švec et al., 2002; Švec, 2005; Blaško, 2009) have mutually agreed that the area of respecting the needs of teachers is still little explored and even less taken into account when content of continuous education is designed and education is conducted.

Our research is one of those that is specifically focused on the needs of novice teachers, and namely in the context of previous academic training and perceptions of those needs by mentors. At the same time, it is expected that its results will have an impact on course provision and adding relevant content of continuous education courses respecting the recently identified needs of novices and mentors.

Methodology

Since 2012, a Slovak team of lecturers at the Faculty of Arts, Constantine the Philosopher University in Nitra has been implementing project VEGA 1/0677/12 (Key Competencies of Mentors Necessary for the Efficient Mentoring of Newly Qualified Teachers), the goal of which is the most satisfactory and most comprehensive answer to many questions about mentors' needs and on their basis to identify the key competencies necessary for successful mentoring of novice teachers.

In 2012 in connection with this project a questionnaire survey was carried out, in which 132 novice teachers and 127 mentors from different types of primary and secondary schools from all over Slovakia took part. Two-thirds of mentors were teachers with more than ten years of teaching experience, and almost half of them had been mentors for at least six years. The majority of the mentors (93 - 75%) were officially appointed to this role and except for two, all of the mentors (98.43%) had never participated in any education aimed at the professional performance of this position.

At the same time semi-structured interviews were conducted in both groups of respondents. The number of these interviews was 23 with novices and 25 with mentors. At the beginning of 2013 cooperation with a researcher from the Czech Republic (Faculty of Education, South Bohemian University in Ceske Budejovice) was established, who carried out the research during the spring of 2013 using the same methods, the same questionnaire and interview scenarios and the research will continue in the following months (the researcher has managed to get the answers from 19 novices and 4 mentors). Due to the low number of completed questionnaires from mentors in the Czech Republic, the results in the text are not compared and only the most interesting facts are presented (as stated by novices, they had rather found their mentors by themselves; mentors were not officially appointed to them).

Results

In Slovakia as well as in the Czech Republic (CR) the majority of participants in all groups of respondents were women (total of 233:49), equally representing different levels of school education. Most of the addressed novice teachers in both countries have chosen their profession intentionally (51.66% said: "for sure yes" and 33.77% - "somewhat agree") and in most cases the respondents wanted to remain in educational system (89.18%). In 75% of cases mentors were officially appointed (most of them were told what their obligations in the role of mentors were). Approximately the same number of them stated that they wanted to become mentors and they wanted to do that job in the future. However, 98% of them did not participate in any kind of education related to their position. The impact of novices on their professional development, a chance to learn something from them, admits 95% of mentors.

Regarding reflection of how novices were prepared for practice by their higher education training institutions, the results observed in the Czech Republic and Slovakia diverge. Slovak respondents evaluate their preparation and expertise in the subjects they teach mainly as "excellent" (39.39%) and "very good" (36.36%). In the Czech Republic most of the respondents marked this area as "very good" (9) and "average" (6). The same regards also the preparation in methodology of teaching the subjects – novices from Slovakia rated it better (as "very good" - 43.94% and "excellent" - 13.64%) than novices from the Czech Republic - the most frequent response in this area was "average" (10) and "weak" (4).

As for the level of teaching practice during their higher education training both the Slovak and Czech respondents evaluated it as "average" (40.91% of Slovak respondents and 10 Czech respondents). In the Czech Republic, however, second place is taken by the evaluation "weak" (6), while with the Slovak respondents it was "very good" (29.55%). Training in evaluation during the higher education studies is assessed in most cases as "average" (44.7%), in the Czech Republic again one level worse - as "weak" (7 respondents). Awareness about the work with pedagogical documentation was evaluated on both sides as the worst – "not sufficient" were stated by 43.94% of Slovak respondents and 10 Czech respondents. The same results were achieved as regards knowledge on how to solve stressful situations (43.18% of Slovaks and 10 Czechs). Similarly, training in the use of a textbook was almost consistently rated as "average" (40.91 Slovaks and 10 Czechs). Awareness about how to use information and communication technologies was again rated lower in the Czech Republic - as "weak" (8 Czech respondents). Only training with integrated pupils in the Czech Republic seems to be better carried out in the CR – the questionnaire results showed an evaluation of "average" (8 respondents) and "weak" (6) compared to Slovakia – "weak" (40.15%), "average" (37.88%).

During the first year of their school practice both Slovak and Czech novices have faced the least misunderstandings and problems with mentors and colleagues, and with establishing a relationship with the school management. What appears to be problematic is the area of work with pedagogical documentation, selection of appropriate teaching strategies, teaching methods and techniques. These results were also confirmed by follow-up interviews in which respondents noted: *"Despite the very friendly and generous environment that my new colleagues created for me, I had a constant feeling that there still is something I do not know ... am not aware of ... I am not sufficiently familiar with the school legislation ..."*.

No insistence in the area of perception of novices' needs was apparent in any of the options offered. All the needs suggested in the questionnaire were assessed as: "to some extent". If we order the suggested needs in this area, then the greatest emphasis was put on the emotional support of family members, friends and colleagues (which is identical to the abovementioned research results of Prokesova, 2000), handling administrative duties,

the acquisition of educational communication, professional and methodological support and advice, and development of methodological skills. The least emphasis was put, on the contrary, on the improvement of communication and interpersonal skills. In the interviews with novices the topic "how to motivate students" occurs primarily and then "solutions for crisis/critical situations" occurs.

Respondents from both countries equally expect a professional approach of mentors towards them, above all, friendly and accommodative behaviour (89.39 % of Slovaks and 13 Czech respondents). Other very much appreciated qualities of mentors were a high level of expertise and professional experience (82.58% Slovak novices and 12 Czechs), a willingness to solve problems and time for discussions (69.7% and 12). At the opposite end, there was a willingness to provide supplementary teaching materials as inspiration for lesson planning (12.88% of Slovaks and 3 Czech respondents marked the answer "I do not expect"). From this question, it is clear that novices expect from their mentors helpful behaviour and positive personality traits more than inspiration in the form of material, concrete advice (which has been mentioned earlier, this follows from the previously address area - what they perceive as necessary). When introducing novices into real teaching, mentors consider "provision of professional support" (67.19%) their most important role. Interviews with mentors confirmed the importance of professional support: *"Pass on to novices the maximum of experience, subject knowledge and perceive and treat novices as equal to themselves, they are not scared to learn something from novices."* In the Czech Republic more emphasis was placed on provision of personal support, which can be attributed to the fact that teachers who have decided to become mentors have taken this decision mainly because of the personal support they wanted to provide to novices and this decision has been voluntary. Another very frequently stated role, regarded as important, is monitoring of the novice's progress (identification of their strengths and weaknesses). It was identified as "very important" in 33.59% and as "important" in 64.06%. The same attitude was expressed towards such features as promotion and development of their self-reflection and counselling. Since the publication of the groundbreaking work of Kyriacou (1991) on key teachers' competences, with the emphasis on the need for reflection and self-reflection as a tool for effective remediation in teaching, university staff and scientists, theoreticians and methodologists have dealt with this issue more closely. At the same time, however, it is possible to say that many teachers often lack this skill. Even a mentor, who should guide a novice to self-reflect, doesn't have to have this skill fully developed. In this context the novices' awareness of the need for support and development of self-reflection, expressed by more than 92% of respondents, is a significant fact. One third of mentors (31.25%) consider this role to be necessary and 60.94% of teachers to be important. To compare novices' and mentors' perception of induction, what novices expect from their mentors is shown in Table N°1. Perception of mentors' roles while mentoring novices is presented in Table N° 2.

Table 1: Expectations of novices

I expect ...	mostly			to some extent			I do not expect		
	Slovakia		CR	Slovakia		CR	Slovakia		CR
	N°	%	N°	%	N°	%	N°	%	N°
high level of professional expertise and experience	109	82,58	12	21	15,91	7	2	1,52	0
professional approach, friendly and generous behaviour	118	89,39	13	13	9,85	6	0	0	0
respect for my opinions, appreciation and support of my creativity and initiative	68	51,51	11	62	46,97	8	2	1,52	0
willingness to solve problems, allocate and have time for discussion	92	69,7	12	39	29,55	7	0	0	0
willingness to provide supplementary teaching materials as inspiration for lesson planning	42	31,82	7	73	55,3	9	17	12,88	3
positive evaluation of innovative methods and forms of work	56	42,42	5	71	53,79	13	5	3,79	1
counselling when solving problems connected with pupil assessment	71	53,79	9	56	42,42	10	5	3,79	0
counselling when solving misunderstandings with pupils and their parents	60	45,45	10	60	45,45	7	12	9,09	2
provision of information about school regime and rules	76	57,58	11	47	35,61	8	9	6,82	0
other	1								

Table 2: Tasks of mentors (results from Slovakia)

Tasks of mentors while mentoring novices	very important		important		less important		unnecessary	
	N°	%	N°	%	N°	%	N°	%
provision of professional support for novices	86	67,19	41	32,03	1	0,78	0	0
provision of personal support	55	42,97	64	50	9	7,03	0	0
monitoring of novices' progress (identification of their strengths and weaknesses)	43	33,59	82	64,06	3	2,34	0	0
assessment (continuous, stage, final)	38	29,69	74	57,81	16	12,5	0	0
mentor as a model for a novice	42	32,81	74	57,81	11	8,59	1	0,78
support and development of novices' self-reflection	40	31,25	78	60,94	9	7,03	1	0,78
mentor in the role of a critical friend (provision of constructive feedback for novices)	27	21,09	78	60,94	22	17,19	1	0,78
counselling (provision of guidelines and information for lesson planning, use of teaching aids, assessment of pupils etc.)	48	37,5	75	58,59	4	3,13	1	0,78
other	1		1					

Compared to Slovakia, in the Czech Republic the decision on nomination of mentors is in the hands of headmasters. The questionnaire survey and interviews with two novices who, although, they had their mentors, show that these mentors were not officially nominated for these novices, they "found each other", or their mentor was a family member who is also a teacher. In the Czech Republic the questionnaire in this area will be modified, supplemented by a question designed to find out who that mentor is, whether he was nominated, or whether they are willing colleagues, family members or someone else. If novices evaluate their relationship with mentors, they refer to it as "excellent" (44.67% of all the respondents), followed by "very good" (29.33% of all respondents). When assessing positive collaboration of novices with mentors, they could have indicated more options in Slovakia. The top positions achieved such qualities as constructive criticism (65.15%), followed by instructions for assessment (63.63%) and lesson planning (62.12%). In the Czech Republic the most frequent response in this

area was "instructions for assessment" (11), as well as instructions for lesson planning (10) and use of teaching aids (9). The most significant differences in collaboration of novices with mentors in both countries was observation of mentors at novices' lessons - in the Czech Republic a very frequent response was "within longer time intervals, randomly" (15), though "never" also appeared very often. In Slovakia observation was reported in 50% of cases as "regular and systemic". Regularity and system of work was most often referred to in Slovakia: professional (66.66%) and personal support (65.91%), and provision of feedback (63.63%) and frequency of contact (58.33%). The answers of mentors show a noticeable lack of mentors' interest in new and innovative methodological and didactic approaches in novices' lessons (37.88%). Mentors state that mainly in the areas of consultancy, provision of professional and personal support did they feel self-confident.

The induction period for novices in Slovakia is usually finalized in the form of observations carried out by school management (58.33%) or mentor (42.42%). Among the answers of Czech respondents terms like "silence along the path", "nothing" or "contract for next year" were often detected. The analysed data show that mentors are fully aware of their role. The opinions expressed in the semi-structured interviews can be summarized into three areas:

1. Communication between mentor and novice must be active, established on the basis of mutual trust, asking questions, creating partner relationship and learning from one another.
2. Mentors must provide their knowledge, experience and skills related to the organization of work, school documentation and creating school education plans, student assessment. Some respondents even suggest a specific procedure: *"In the ideal case the mentor will analyse with the novice each of his/her lesson plans, showing him/her how he would teach that lesson (even having the novice at the mentor's lesson), will provide or offer his lesson plans, will record the novice's lesson on video, and then will analyse it."*
3. There must be constant appeal to continuous personal and professional growth of teachers, while it is necessary to call for the renewal of the status of teachers, their social recognition and adequate financial remuneration.

As for the evaluation of the first year of teaching experience at schools novices feelings expressed in the semi-structured interviews varied from "exhausting, stressful, confusing" through "despite the mixed feelings also joyful", and "anticipation of stress and natural fears" up to "successful start." The areas they perceive as problematic are: "time consuming preparation for lessons, extensive documentation, managing of parental meetings, acceptance and integration into a new school, Roma pupils, teaching status and school facilities."

Conclusion

The results of the research show that the most important factor at the start of a teaching career for both groups of respondents are mainly relationships - relationships not only between the novice teacher and colleague-teachers at school but also between the novice and mentor. A novice enters school practice in majority cases with enthusiasm, expectations, willingness to work, but of course, also with some fears and hesitation, and therefore it is very important to avoid disappointment at the beginning of their careers, so that they do not have to face the "shock of reality." Mentoring is undoubtedly a very important element at the start of the teaching career of novices. We consider it a very positive fact that the role of mentors in Slovakia has some legislative basis in comparison with the situation in the Czech Republic. The current research data show that the role of mentor is perceived as very important. The interviews show that if a headmaster or someone from the school management does not nominate a mentor, novices try to establish a closer relationship with some of their colleagues who fit

this role, are willing to help and give advice. Bearing in mind that in the Czech Republic only a small pilot of this research has been carried out, it will be interesting to compare whether the data obtained in the pilot will confirm what has been established so far or whether other respondents will respond differently. As recognized from the research in Slovakia, Slovak mentors are fully aware of their role and show an effort to meet the expectations of their younger colleagues - novices. They can formulate their duties, they are aware of their responsibilities, and know the strengths and weaknesses of carrying out their tasks and roles. Many sense the importance of their role; they feel their work brings them pleasure and a feeling of reward. However, they rely mostly on their own knowledge, experience and strengths but lack meaningful and focused guidance. Last but not least, they are not adequately paid, which can act as a de-motivating factor. Mentors therefore call for support from school managers and for systematic, purposeful training.

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Zákon č. 317/2009 Z. z. o pedagogických zamestnancoch a odborných zamestnancoch a o zmene a doplnení niektorých zákonov

Vyhláška 42 z 26. ledna 1996 o dalším vzdělávání pedagogických pracovníků.

Vyhlášky ministerstva školství České socialistické republiky č. 79 ze dne 26. října 1977 o jednotném systému dalšího vzdělávání učitelů škol poskytujících základní, střední a vyšší vzdělání a ostatních pedagogických a výchovných pracovníků

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4th International Conference on New Horizons in Education

Meshk: As a Tradational Method of Turkish Music Education

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Abstract

Education of traditional fine arts like Calligraphy, Decorative arts, Qiraat (Reading Quran), especially Music was performed by the method of Meshk. As a correlative method of teaching realized by teacher and pupil, Vocal training, saving of verbal and instrumental repertoire together with transferring from generation to next had been achieved by this method. Until the first quarter of 19th century, education of Turkish Music was based on this method. Later on Meshk has been practiced partially in some music institutions such as conservatories ect. established by Westernize influence. The most important advantage of meshk method for student is learning by his teacher's style and characteristic and then carrying on a song, instrument or a performing type of music how his teacher instructed. In this presentation, practicing of meshk method, its types, pre-qualifications of the student to be acceptable for education, its duration, location and institution to exercise, qualifications of teacher to make meshk, positive and negative aspects of this method will be mentioned.

Keywords: Turkish Music, Education of Music, Method of Meshk, Traditional Music Education, Conservatory.

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1. Introduction

Successors described music as a language of love and nutrient of the soul in the mean time an obvious indicator of a nation in terms of civilization. Music of Turks before the Islamic era was composed of folk poems generally song with an instrument. Musicians of that era in the mean time were artless poets look like each other, carrying an instrument called kopuz. They were traveling tent to tent and singing in general and special meetings about epics of old heroes and national legends or composing new songs on contemporary affairs. Principles of rhyme were very simple and primary in that era when the music and poet weren't separated yet. (Köprülü, 1981:11-12). However some notation systems –abjad–were improved in the most music books of theory after Islamic era when the writing tradition grew up, these systems were never used in musical education and saving repertoire. The meshk method, providing a lot of easiness for education and transmission of Turkish Music appropriate to the conditions of nomadic society, has sustained its existence until the end of 19th century. In this study, the brief information about history of meshk-an indispensable method of oral and written traditions-, application, places where applied, positive and negative properties will be mentioned.

2. A Brief History of Meshk

As an educational and transitional method that Turks used from central of Asia, the most historic information about constitutional application of meshk belongs to Ali Ufki Bey (Wojciech Bobowski): “*Meshk-khane is the name of the room where the music is learned. Room and military musicians come to this room until the evening. The most spectacular songs are taught by Teachers sit across the students Sometimes with and sometimes without of an instrument. Knowing the tunes they compose new songs by using them. Music is learned by memorizing, writing of music is nearly a miracle.*” (Behar, 1990: 44-45).

After Sultan Mahmud the 2nd western effects started to appear in the traditional musical enjoyment. Just after repealing of janissaries and closing of Mehter-khane, musical direction had changed by Muzika-i Humayun concerts. In that century, Classical Turkish Music had existing its command in different sites starting from palace furthermore Classical Western Music also hold a place. Up to that time firstly Enderun-ı Humayun then dervish lodges, mosques, kiosks, special classrooms, Darulelhan, music ensembles and coffee houses became the clear places where the music to learn and perform.

At the end of 19th century it obviously seems that the meshk and notation had been started to use together in the education of Turkish Music. The head-neyzen of Galata Mawlawi lodge, Mehmed Emin Dede had learnt from his teacher Hafız Ishakzade Sadık Bey a lot of masterpieces starting from works of Hammamizade Ismail Dede in mode of neva. At the end of the lesson he wrote down the notes of new songs. He also copied music of his second teacher Bolahenk Nuri Bey's composition of Mawlawi rituals in the modes of karcigar and buselik. (Şeker,2013:568-569/ Inal,1958:176-177). This case shows the notation was not used by predecessors for music education and transition, it was used as a tool just for remember the melodies easily.

3. Implementation of Meshk

The student attributes required for acceptance are beautiful voice, earring for music, rhythmic sense and so evident music ability. In addition to these, the student should be willing and intent to learn music. “*Hacı Arif Bey...were repeating his song to his student fifteen times, if the student could not learn he would end the teaching.*” (Inal,1958:70) And also the student's admiration and love to his teacher was a speeding factor for learning music. “*Emin Dede was listening his master Huseyin Dede in deep appreciation when he playing ney.*” (Şeker,2013:568/ Inal,1958:177).

Knowledge of theoretic in Turkish music of all teachers is equal but the teachers are specialized on the matter of different kinds and forms. “*Zekai Dede advised his student Kazım Bey to his learn the performing style of na’'ts and duraks from Behlul Efendi, one of the famous musician of the time.*” (Inal,1958:104-105).

Characteristic and performing style of the forms should be reflected for a successful performing. Because of this, to make meshk all kinds and forms from one teacher is not possible for a student. So he should find the best performer teacher of different forms. (Şeker,2013:568/ Inal,1958:46).

Meshk for a student providing prerequisites is a simple method for music training. The most important technical requirement in this method is to realize the training by always playing rhythmic structures. Lyrics of the song is written by the student or written/issued lyrics book is benefited. The student continues the rhythm by beating his right and left hand then the teacher read the song by making rhythm, then the student repeats.

The teacher makes the student read the song partially (zemin, nakarat, meyan, terennum etc.) and as whole many times until he memorizes it completely and makes him repeat until hesitations and mistakes disappear. So the student sit down in front of his teacher, watches what he says, does, shows carefully then repeats. The teacher makes required warning and corrections in these repeats. The main purpose is to put the song into the student’s memory. (Behar,2003:16). Student must memorize all that were transferred to him and remember them.(Ak;23). Notes were never used in this system in which music theory, performing techniques, performing style and repertoire were used together.

Lyrics books and rhythm implementations are aspects to strengthen the mind while making meshk and performing a song. This situation is also expressed by Charles Fonton as follows: Especially rhythmic structures are the most important assistant for the mind to locate the song into the memory and remember them.(Fonton,1987:71).

Rhythm in the instrument group was provided by some kind of drums such as kudum, bendir; while meshk of student-teacher, they play rhythm without using any instrument but by beating hands on their knees. The expression “beating knee” in meshk method means this implementation.

Meshk of instrument students was implemented depending on memory because of especially having no lyrics for the instrumental songs and making rhythm while performing were the complicating factors. Because of this difficulty even most skillful instrument players could know nearly hundred peshrev after long time spending effort. (Fonton,1987:66).

Sometimes masters of music came together for different aims (Şeker,2013:567), performances in these meetings were also called meshk. This kind of meshks provides masters having a repertoire composed of thousands of songs to refresh their minds and not to forget them. The most of famous Turkish musicians had continued joining that kind of periodic meshk meetings(Inal,1958:104-105), in case of not to forget repertoire in the length of time. (Ergun,1943:632). Training without using notes but depending on memory in the meshk method as the most important disadvantage caused changes in and loss of thousands of songs. Another reason for the loss of songs is death of the people who memorized the unwritten songs. (Ak:23).

4. Musical Education Institutions Applying Meshk

4.1. Enderun-ı Humayun

It is a palace institution for education established in the Ottoman Empire in the middle of the 15th century. Students having a certain level and capability were accepted to this school in which Civilian and military administrators were mostly trained. Music and other kinds of art (İpşirli:185-187) were taught in addition to the courses on the Islamic culture and religion, civilian and social information, foreign languages and sports; a lot of artists and composers were graduated.

4.2. Dervish Lodges

Lodges of different parts of Sufis such as Khalveti, Qadiri, Rifai, Gülşeni, Bektaşî especially the ones belonging to Mawlawis (Mawlawi-khanes) played important role in music and instrument training by meshk method in the classical and religion music. Mawlawi rituals (Özcan:464-466) -the most precious form in Turkish Music- and the other forms such as na‘t-ı şerif, taksim, peshrev, semai, kıraat, tekbir and salat were all taught by meshk method in Mawlawi-khanes (Gölpınarlı, 1963:75-109), which spread to all Ottoman land from the Sufi thought around Jalaladdin Rumi in 13th century, then they are transferred to the next generations. Mawlawi-khanes in Istanbul acted as a conservatory in 18th and 19th centuries and was the school of the most famous names of classical Turkish music. Buhurizade Mustafa İtri, Ali Nutki Dede, Abdülbaki Nasır Dede, Kutbunnayi Osman Dede, Hammamizade İsmail Dede, Zekai Dede, Hüseyin Fahrettin Dede, Sultan Selim the 3rd and Rauf Yekta Bey are the famous mawlawi musicians trained in these institutions in which sema and music were taught by meshk methods. (Tanrıkorur:474)

Obviously all specialties of Turkish classical music were meshked in the meetings organized in the mawlawi-khanes. If we have a look into the lives of musicians from every class, probably each of them visited these places. The greatest composers of Ottoman Music raised from dervish lodges, so that their masterpieces are carrying different colors of mysticism. (Çetinkaya,1999:50).

4.3. Mosques

The forms of Turkish Religion Music such as ezan, kıraat, kamet, sala, tekbir, tesbihat, temcid, tevshih, mevlid, miraciye, kaside ve ilahi have special performing style and also are performed spontaneously in the mosque. The main aspect in the performing style of these forms is using tunes of mode while reading text depending on human voice with no instrument. Most of these texts constituting lyrics are Arabic and are read by slow rhythms and ascetic characteristic. Students made meshk by forms of mosque music, characteristic and performing style, application of voice and modes are made within the tradition of memorizing the Koran.

4.4. Mehter-khane-i Humayun

Turks, who were using music as a military aspect until the oldest period of Turkish and Islamic history, continued to use military music as “Nevbet” tradition under the shelf of mehter-khane in the term of Ottoman Empire. Music, which was used as an item providing command of army in the war in addition to its physiological affect, was learned by meshk method in the mehter-khane. Zurna, boru, kurrenay, mehter dudugu, kos, davul, nakkare, tabılbaz, def, zil ve cevgan were the most known instruments of mehter.(Sanal,1964:65). The head of each instrument, called “aga”, was the master of the other players of the same instrument. This person was responsible for teaching music and the instrument, transition of repertoire to the players of the same instrument. Nefiri

Behram Aga, Hasan Can Celebi, Shahkulu, Kemani Hızır and Mustakim Aga are said to be important composers of mehter music that has rhythms special to itself and rhythmic performing style. Musical activities of Mehter had continued until the institution of Muzika-i Humayun.

4.5. *Special Classrooms And Home Meetings*

In the history of Turkish Music, famous musicians made meshk at their homes with their desiring students sometimes one-by-one and sometimes all together. Some of them also instituted music schools. An example for this, as Bolahenk Nuri Bey, Hacı Faik, Zekai Dede, Hacı Kirami, La Mekani Mustafa, Yenikoylu Hasan Efendi, Hacı Arif Bey-master of music masters- had benefit from meshks made in the Kiosk of Halim Pasha and collection of rare songs composed by the Pasha. Hacı Arif Bey was teacher of instrument ensemble of the kiosk in Bebek belonging to Princess Emine Hanım -mother of Egyptian Abbas Hilmi Pasha-, provided Shehzade Cemalettin Efendi made musiqi meshk. (Şeker,2013:571-575/Inal,1958:74) Behlul Efendi -one of the famous musicians of the last century-, Yenikoylu Hasan, Tanburi Behor, Bestenigar Ziya Bey, Musullu Ama Hafız Osman, Malak Hafız Efendi- zakirbaşı of Nureddin Cerrahi- were coming together in the small kiosk in Pashabahce belonging to Sheyhulislam Sahib Molla Bey and made meshk. (Inal,1958:104-105). Examples of this application that became tradition have come through today.

4.6. *Darulelhan*

The first music school instituted with Darulbedayi in Ottoman Empires in 1914 was Darulelhan. In this school which had two different curriculums; Eastern and Western music, the aims of Eastern part were to save the classical music from being forgotten and deformation, to improve in order to be useful for theater, to translate the classical songs into notes, to make the songs alive and to spread the music enjoyment to the society. In the curriculum of this school, courses of violoncello, piano, composition and history of music were present in addition to theoretics, solfegé, Turkish Religion Music, Turkish Music rhythms, Turkish Music instruments, singing as an art.

Darulelhan had also attributes such as to make scientific studies, to issue the valuable songs after translating them into notes, to make researches about folklore. In this perspective, notes of classical Turkish Music songs had issued under the name "Darulelhan Kulliyati". Latter on it continued its activities under Music Conservatory of Istanbul and Istanbul Municipal Conservatory. (Özcan:518-520). In this institution, meshk method had been applied practically in addition to training depending on notes.

4.7. *Music Comities and Ensembles*

Daruttalim-i Musiki (Özcan:9-10) and Shark Musikisi, Darulfeyz-i Musiki, Music Ensemble of Uskudar (Tanrıkorur,2004:167) that were instituted by Fahri Kopuz to improve Turkish Musiqi, to train voice and instrument artists are the most famous ensembles. Music training had been carried out with meshk and note together in all of these ensembles.

4.8. *Coffee Houses*

It has been reported that teachers and pupils had come together and made musiqi meshk in the coffee houses. Rauf Yekta Bey -student of Zekai Dede- is telling Zekai Dede had made meshk with his teacher Eyyuplu Mehmed Bey at a coffee house in Eyup at the 1840's. (Yekta,1318:22-23). Another example Hacı Kirami Efendi, one of the famous music teacher lived at the end of 19th century, was performing periodic meshk at a coffee

house in Tashkasap. (Ergun,1943:II,468). In the same century Incesaz groups also aroused from coffee houses. (Özalp:I,223).

5. Positive And Negative Properties of Meshk

Not having auxiliary materials such as lyrics books -gufte mecmuaları- has increased the number of lost songs in the meshk of instrumental compositions, differentiation in the songs has raised in addition to no change in the present repertoire.

Because it is a method depending on memory; it caused changes in different forms such as Kar, ayin, miraciye and to forget them after a while by complicating learning and transition of them. However, this change in the repertoire can be explained with the musical enjoyment that can be changed periodically, also changes and improvements in the modes and rhythm perceptions. Another opportunity is that; base level songs in that era were excluded from the repertoire and then lost because they were not worth to meshk to the pupils. So, the meshk of the songs chosen by the teachers corresponding to their aesthetic worries is because of the songs that were thought not to have permanent value or have problems have not been transferred.

Instead of the negative properties of meshk, the explanation of Sadettin Nuzhet Ergun about using meshk is important: He declares notation never contains local performing styles and characteristic. So that real teachers of Turkish Music did not use notes only. (Ergun,1943:II,629). This explanation shows transition of characteristics and style in the meshk method was provided more perfectly so the music authorities in that era preferred it instead losing and changing in the songs.

6. Conclusion

Meshk; a teaching method prioritizing the memory, has not lost its validity till old nomadic Turkish societies. Due to the Turkish music types are able to carry over properties of their characteristics and performing style; it's being used since notes were started to be used for performing and transition at the end of the 19th century.

Meshk method had been used in training of Turkish music and instruments within the historical periods; it has kept its validity until now as a traditional teaching method in different institutions and different types of music. Because of the meshk realized practically and mutually between the teacher and the pupil; repertoire, characteristics and performing style have been transferred by the music training.

Meshk of musiqi masters realizing by themselves can be said that it provides remembering and reflecting the correct characteristics and performing style to the listeners instead of teaching. Additionally, their meshk provided to fulfill the listeners.

Songs always needed to be performed with their rhythms in the meshk method used in the traditional teaching of Turkish Music. This situation had provided the song to locate in the memory and performing it successfully. Rhythm problems appearing in the Turkish musical performances realizing at the present day may be explained with rejection of kudum; the main aspect of the meshk, by some instrument ensembles. This also can be evaluated as a problem caused by not applying the meshk method in the present Turkish music training.

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Middle-class chinese parental expectations for their children's education

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Abstract

Of family variables contributing to children's school achievement, parent expectation was singled out by researchers to be the most salient and powerful force. Existing literatures have reported that Chinese parents overseas highly expect for their children's education, and actively involve themselves in associated activities. Based on information collected from 322 questionnaire survey and 30 face-to-face interviews with parents, this research attempted to investigate what expectations Chinese parents in Mainland China have for their children's education, and how to understand their educational expectations for their children, then to add in-depth understandings of Chinese parent involvement into the growing literature.

Keywords: Chinese, parental expectations, children's education, understanding

1. INTRODUCTION

Parent expectations are beliefs or aims that parents hold about their children's future performance and are mainly focused on achievement-related areas such as educational, professional (Barber & Rao, 2005). Of many family variables, parental expectations have been singled out as the most salient and powerful force contributing to children's school achievement (Hoge, Smit, & Crist, 1997; Patrikakou, 1997; Peng & Wright, 1994; Seginer, 1983), especially parental expectations for children's educational attainment (e.g., whether or not attend college) have been found to be significantly related to both the child's current achievement and later achievement (Fulgini, 1995; Marjoribanks, 1988). Considerable evidence have been provided by previous studies for the link between parents' high expectations for their children's academic pursuits and children's educational outcomes (Eccles, Wigfield, & Schiefele, 1998; Englund, Luckner, Whaley, & Egeland, 2004; Fan & Chen, 2001; Ganzach, 2000; Juang & Silbereisen, 2002; Pomerantz, Ng & Wang, 2006). Children with higher scores on measures of achievement, competence, and intelligence have turned out to have parents with higher educational expectations and aspirations for them (Sandefur, Meier & Campbell, 2006).

Existing studies of Chinese parenting have reported that Chinese parents not only have higher expectations for their children's academic achievement, but also place a high premium on their children's education and academic success (Li, 2001; Chao & Tseng, 2002; Shek, 2006; Cheng and Sally, 2009). However, most of these researches targeted at Chinese parents overseas, or in the areas of Hong Kong and Taiwan. Currently, there is limited literature investigating Mainland Chinese parents' expectations for their children's education, and how they

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involve themselves in their children's education. This research attempts to address the gap and add new knowledge of Mainland Chinese parental expectations and parenting to the growing literature. As Social Reproduction Theory (Bernstein, 1975) advised that the apparently neutral academic standards are laden with specific cultural resources, typically from the dominant classes — middle class, acquired at home, this study focused on exploring middle-class Chinese parents' expectations for their children's professional performance and education attainment in the future, and their practical parenting pattern.

2. AIM OF THIS STUDY

Drew on 322 questionnaire survey plus 30 face-to-face semi-structured interviews with parents, and grounded in Chinese social cultural context, this study aimed to address the current insufficiency of research on Mainland Chinese parental expectations, and to add in-depth understandings of Chinese parenting and Chinese culture to the growing literature. Guided by the aim and the core research, this study investigated three questions:

- What expectations do Chinese parents have for their children's education and future?
- Why do they have such expectations?
- How are they involved in their children's education to help fulfil these expectations?

3. RESEARCH DESIGN

3.1 Method

This study adopted a mixed method of using quantitative questionnaire survey and qualitative in-depth face-to-face interview. Questionnaire survey in this study served as the main resource of data, aiming to collect information in a broader range. It included three sections. The first one was about parent's basic demographic characteristics, i.e., gender, age, education level, occupation, and yearly income, etc. The second part looked at parents' specific expectations for their children's professional future, followed by the last section investigating how parents were involved in their children's education to help fulfill their expectations, i.e., time spent on homework supervising, frequency of talking about school issues to their children, extra-curricular lessons currently registered for their children. The face-to-face interview was designed to triangulate information collected from questionnaire survey, and to deepen understandings of Chinese parental expectation. It investigated parents' expectations for their children's education attainment and the reasons for their expectations. Quantitative data and qualitative information gathered were respectively analyzed by descriptive statistical technique and content analysis method (Johnson & LaMontagne, 1993).

3.2 Research site

Data collection was undertaken in Changsha, the capital city of Hunan Province, located in the Centre of Southern China. Although as medium-sized city, it holds the population of more than 6 million. With a higher rate of graduations enrolled into universities, the city has had a high prestige for its successful basic education. Parents here have been greatly involved in scaffolding their children's education achievement. Findings obtained in Changsha, could be generalized to a broad range and added into the literature for better understanding of Chinese parent involvement and Chinese culture.

3.3 Participants

This study shed lights on middle-class Chinese parents' expectations for their children's education. Initially, 415 parents consented to be involved in the questionnaire survey with children studying in year 3 or year 6 in the 4

primary schools deliberately selected from the urban area in Changsha. After doubly filtered by the criterion of having education level no less than 12 years, and family yearly income more than 100,000 RMB (Statistics, N.B.O. 2002), there were 322 parents left to actually participate in the present study. Except 11 parents' gender missing, they were 213 mothers, and 98 fathers. Besides the questionnaire survey, 30 parents, of them, 28 mothers and 2 fathers, were randomly selected to undertake the face-to-face interview.

3.4 Sampling & Procedure

Under the standard of having middle-class meanwhile from diverse background parents, this research purposively selected 7 schools from 1024 primary schools in the urban area of Changsha. Principals of these schools were initially contacted with by phone and email for their interest in attending the project. Positive response was received from principals of 4 schools. Within these 4 schools, there are 3 public schools, one affiliated to a "key" university with students mainly from highly-educated families; another one affiliated to local government whose majority of students were born in civil servant families; the last itself is a comprehensive "key" school mainly serves diverse but middle class families. The rest of these 4 schools is a private school, having students predominantly from business background family. The 4 schools selected have students mainly from middle class but different family background, could be regarded as ideal samples for this research. Then detailed information sheet and consent letter were sent to principals to sign. In each school, year 3 and year 6 were selected as sample year level, as both of them play significant role in China's basic education system. Start from year 3, curriculum becomes more comprehensive, and year 6 is the critical year for students to well prepare for the difficult entrance-exam for secondary school. Parents greatly involve themselves in their children's education in these two years. Looking into these two years' parenting could help capture the typical feature of Chinese parenting and better understand Chinese parent involvement.

From each year, 1 class was respectively randomly selected to attend the research. 8 classes in total were selected to complete the questionnaire survey. Information sheet and consent letter for parents were sent to and be handed over to parents by the classroom teacher.

In each class, among parents who consented to participate in the research, five parents, 40 in total, were randomly invited to undertake the interview. 30 of them were pleased to do the face-to-face interview, and were further contacted with about the schedule of interview. All interviews were conducted in Chinese at times and in places nominated by parents. 90% of them were completed within 1 hour. Before interviews started, parents were promised that the information they provided would be confidential; no name of participants, their children, or schools would be reported.

3.5 Instruments

Fan (2001) understood that parent expectations are parental beliefs in their children's academic achievement ability. However, according to Barber and Rao (2005), it should also include parent's views about their children's professional performance. On the basis of previous understandings of parents' expectations for their children's education, this study looked insight to both children's professional performance and education attainment in the future.

As a multifaceted concept, parent involvement includes a broad range of parenting practices. Throughout the majority of the literature, Epstein's Model (1986, 1995) has been widely accepted as a typology and fundamental framework for investigating parenting activities (Cheng & Sally, 2009). This model defines parent involvement at six levels: parenting (addressing daily life needs and material support for children's study); communicating (talking with teachers/schools about school programs and children's progress); volunteering (assisting with

schools events); learning at home (supervising children's learning); decision making (participating in school's decision-making); collaborating with community (to access education-related services in community programs). Based on Epstein's Model, meanwhile grounded in China's context, this study specifically investigated three types of parenting significant in Chinese education system: homework supervising, extra-curricular lessons parents registered for their children and parents' communicating school issues to children (as well as their perceptions of the importance of education and test results).

4. FINDINGS

Findings presented in this study focus on:

- Participants' demographic characteristics
- Chinese parents' expectations for their children's professional and academic future
- Typical types of Chinese parent involvement
- Understanding of Chinese parent involvement

4.1 Parent's demographic characteristics

Information about participants' demographic information could be found in Table 1. As indicated, two thirds of the group was mothers, which is highly consistent with findings of previous studies (Lau, 2006; Cheng & Sally, 2009) that mothers are the ones who shoulder a large portion of parenting. However, this study found that Chinese fathers, nearly one third of the sample (30.5%), also actively participated in parenting. All parents in this study were mid-aged, ranging from 29 to 52 years old, with most of them younger than 46 years. It also could be found from the table that this group of parents was well-educated. More than half of them (52.8%) completed at least 16 years education and held bachelor & above degrees. Almost another 28% of these parents obtained diplomas from their senior or junior college study.

Except 4 housewives, 7 labors and 6 unemployed parents, the majority of this well-educated sample had decent occupations. Almost half of them were on the managerial positions, as civil servants (9.6%), professional managers (9.3%), administrative officers (10.2%), and business owners (8.4%). Within almost another half of these parents, 31.1% of them were professionals, working as doctors, engineers, designers, lawyers, teachers, journalists, movie directors, etc., with the rest 7.8% of them was professional freelance. From the information of family income shared by 43.5% parents of the group, we could find that these middle class participants were wealthy. The average yearly family income is 304,000RMB. More than half of them have yearly salary more than 100,000RMB but less than 200,000RMB. Slightly less than another half of these parents earned more than 200,000RMB per year, with 2.2% even more than 1,000,000 RMB.

Table 1. Demographic Characteristic of Parents (n=322)

Variable	Number	Percentage %	Median	Average
Gender	Mother	213	66.1	
	Father	98	30.5	
	Information Missing	11	3.4	
Age (29-52) (Yrs)	[29,35]	66	20.5	38
	[36,40]	175	54.3	38.2
	[41,45]	62	19.2	
	[46~52]	9	2.8	
	Information missing	10	3.1	
Education Level (Yrs)	Doctor Degree (22)	7	2.2	16
	Master Degree (19)	29	9	15.5
	Bachelor Degree (16)	134	41.6	
	Senior College (15)	72	22.4	
	Junior College (12-15)	16	5	
	High School (12)	39	12	
	Information missing	25	7.8	
Family Yearly Income (¥1.0=10,000)	[10, 20)	76	23.6	16.9
	[20, 50)	51	15.8	30.4
	[50, 100)	6	1.9	
	[10,600]	7	2.2	
	Information missing	182	56.5	
Occupation	Professionals (doctor, teacher, engineer, accountant, consultant, designer, journalist, editor, IT, Pharmacists, etc.)	100	31.1	
	Civil servant (junior & senior)	31	9.6	
	Freelance	25	7.8	
	Managerial professional (President, CEO, manager, etc.)	30	9.3	
	Administrative officers	33	10.2	
	Business owner	27	8.4	
	Housewife	4	1.2	
	Labor	7	2.2	
	Unemployed	6	1.9	
	Missing	59	18.3	

4.2 Parents' expectations for their children

Information could be found in Table 2 of parents' expectations for their children's professional future and education attainment. More than two third of parents (67.7%) clearly expressed their expectations for their children's professional future. Most of them expected their children either to be skill-oriented "professionals", (52.8%), such as doctor, engineer, lawyer, etc., or to do managerial jobs, i.e., "government officers", or "business

managers/owners”, or to be one of these two groups (7%). Only 0.5% parents considered manual labors could be their children’s career in the future. Although 24% parents did not clearly mention what they would prefer their children to be/do in the future, there were 17% held positive response to this question. Nearly 10% indicated they would respect their children’s own choice, with another 7% hoped their children to be a capable, happy person, and to do their own contribution to the society. Only 7% of all parents held relatively passive attitude about it, either letting the nature take the course or so far lacking of actual consideration.

Similar to parents’ expectations for their children’s professional future, in the face-to-face interviews, 19 out 30 parents (63.3%) clearly expressed that they wanted their children to complete at least university level education, moreover, 23.4% parents reinforced it should be a “key” university or first-class university. Among those parents who did not exactly share the related information, there were two 10% parents respectively wished their children be a professional, or to grasp a certain skill to be financially self-supported.

Table 2. Parents’ expectations for their children (n=322/30)

Parents’ expectations	Category	Number	Percentage%	
Clearly-mentioned (67.7%)	Professional (only choice)	170	52.8	
	Professional or Government officer	11	3.4	
	Professional or Business managers	5	1.6	
	Government officers	11	3.4	
	Business managers, owner	13	4	
	Government or Business managers	6	1.9	
	Professional future (N=322)	Labour	2	0.5
		Respect Children’s interest & dream	30	9.3
		Happy, capable citizen, contributing to the society	24	7.5
		Let the nature take the course	13	4
Common citizen		2	0.5	
Haven’t considered		8	2.5	
Missing		28	8.6	
Education attainment (N=30)	Bachelor and above	9	30	
	Clearly-mentioned (63.3%)	Key university	2	6.7
	First-class/Overseas university	5	16.7	
	Master degree	2	6.7	
Not clearly-mentioned (24%)	Government officers	11	3.4	
	Business managers, owner	13	4	
	Government or Business managers	6	1.9	

	Doctor degree	1	3.3
	To be professionals	3	10
Not clearly-mentioned (36.7%)	Good study habit	1	3.3
	Be healthy & happy	4	13.3
	To be self-supported	3	10

4.3 Parents' involvement in their children's education

Table 3 described how these parents were involved in children's education. Three types of parent involvement were examined. Of homework supervision, almost 90% parents actively involve themselves in daily supervising their children's homework from less than half hour to more than 3 hours. The associated time for 36.3% parents was less than 30 minutes; while to another 33.2% parents, it was more than half hour but less than 1 hour. However, there were 12.4 parents spending 1 to 2 hours a day helping their children with home learning, while to another 3.1% and 2.3% parents, it was respectively 2 to 3 hours or more than 3 hours each day.

Having extra-curricular lessons is a must-do educational activity for Chinese children, with time and money heavily invested by their parents. As shown in Table 2, except 8.1% parents failed to share their information, almost all of them currently registered one to six, with the average of two, extra-curricular lessons for their children. Slightly more than 50% of these parents' children were engaged in 2 to 3 training lessons, with another 21.1% had one subject, and 15.8% had 4-5 subjects. There was even 0.6% of the sample registered more than 6 lessons for their children. Of these lessons, 52.4% focused on enhancing children's academic performance; only 8.8% was to develop their interest in arts and sports; another 32.4% were related to both. Besides completing homework assigned from school, 32.6% of these parents' children had to weekly spend 5 to 10 hours on such training lessons. To another 5% children, the time was 10 to 15 hours. 1% children even spent 15 to 20 hours a week on this after-school training. Fortunately, to 53.7% of children, the time was less than 5 hours per week.

Table 3. Parents' involvement in their children's education (n=322)

Involvement Type	Scale	Number	Percentage	Average	Median
Involvement	Yes	289	89.8		
	Not	21	6.5		
	Missing	12	3.7		
Daily home-work supervision	≤30mins	117	36.3		
	30-60mins	107	33.2		
	1-2hrs	40	12.4		
	2-3hrs	10	3.1		
	≥3hrs	7	2.3		

	Missing	41	12.7		
	1	68	21.1		
	2-3	175	54.4		
Amount of subject [1,6]	4-5	51	15.8	2.47	2
	6	2	0.6		
	Missing	26	8.1		
	Academic	155	52.4		
Area of subject	Arts & sports	26	8.8		
After school courses	Mixed	96	32.4		
	(,5]	173	53.7		
Weekly hrs spent (by children) [0.5, 20]	(5,10]	105	32.6	5.25	5
	(10,15]	16	5		
	(15,20]	3	1		
	Missing	25	7.7		
	[960, 6,000)	130	40	7,800	6,000
	[6,000, 10,000)	78	24.2		
Yearly Expense ¥ [960, 30,000]	[10,000, 20,000)	70	21.7		
	[20,000,30,000]	70	21.7		
	Missing	32	9.9		
	Daily	64	19.9		
	Often	221	68.6		
Frequency	Occasionally	23	7.1		
	Rarely	7	2.2		
Communicating study to children	Never	0	0		
	Missing	7	2.2		

Plus time, money also was generously invested on these lessons by parents. To 40% of the sample, the yearly expense was less than 6,000RMB, but to another two 21.7% of parents, it was respectively between 10,000 ~ 20,000RMB; and 20,000 ~ 30,000RMB. There were another 24.2% parents spent less than 10,000 but more than 6,000 on their children's training courses.

In addition to hours and money spent on children's homework supervision and training courses, for these Chinese parents, communicating study to their children also served as an important type of parenting. As information revealed in Table 3, Chinese parents highly concerned their children's study by communicating with them frequently. Nearly 20% of them did it every day, while presumably another 70% did it "often". Only about 10% of these parents seldom or rarely mentioned these issues to their children. There was no parent never has talked about study to their children.

4.4 Parents' understanding of their expectations for their children's education

As described in Table 4, most of parents considered that education was important to their children. It was "significantly important" to 63.4% parents, 'relatively important' to another 10% parents. However, to the minority of these parents, it was "Relatively not important" or "Not important at all". 53.3% of those parents who appreciated the value of education regarded it as an effective means of enhancing their children's social status. Similar to this view, another 13.3% parents considered that education was an important way for their children to learn, and to know more about the world. In the rest of 33.4% parents' opinion, education was crucial for children's whole life. While being asked the reasons for their expectations for their children's education, half of the group claimed that it was to well prepare their children for the high competition of workforce. Another 30% parents contributed it to the influence of Chinese cultural tradition, where parents highly respect education and expect for the next generations' future. Different with this, another 20% parents think it was caused by the university-entry system, where students have to pass the difficult entry-exam to get enrolled into a university.

Table 4. Parents' involvement in their children' education (n=30)

Variables	Parents' perceptions	Number	Percentage %
Importance of study to children	Significantly important	19	63.4
	Relatively important	3	10
	Relatively not important	7	23.3
	Not important at all	1	3.3
Significance of education	Means of enhance social status	16	53.3
	The way to learn, know the world	4	13.3
	Crucial for children's whole life	10	33.4
Reason of emphasis on education	Cultural tradition: respect education, parents' high expectation	9	30
	preparation for the competitive workforce	15	50
	Impact of university-entry system	6	20

5. DISCUSSION

Different from previous research focusing on Chinese parents overseas, or in Hong Kong, and Taiwan (Chao and Tseng, 2002, Shek, 2006; Li, 2001), this study looked insight to middle-class Chinese parents in Mainland China, and aimed to explore an in-depth understanding of Chinese parents' expectations for their children's education. Based on Epstein's model, combined with information collected from questionnaire survey and face-to-face interviews, this study investigated middle-class Chinese parents' expectations for their children's education, the reasons for their expectations, and the pattern of their parenting.

From information shown in the above tables, this study found that Chinese parents at home, as their peers overseas, put children's education in a critically important position (Li, 2001; Cheng & Sally, 2009), and seriously concerned on their children's learning (Pearce, 2006). The majority of parents in this research considered education as "crucial" for their children's whole life, and valued education's function as the way for their children to learn more about the world, to enhance their social status in the future.

Closely related to their philosophy of education, more than two thirds of parents expected their children to complete at least university level education, and almost all parents wished their children work as professionals, business managers or civil servants. Only 2 parents in this big sample did not mind if their children work as a manual labor.

In order to fulfill the high expectations for their children's future, parents in this study were found to be highly committed to their children's learning and school success, and actively involved in their children's education. About 90% of this group not only daily supervise their children's home-learning, but also communicate study to their children in a high frequency. Quite different with their peers overseas, 100% of these middle-class parents heavily invested in their children's extra-curricular training lessons. More than two thirds of these parents registered at least 2~3 courses for their children, and the yearly expense is more than 10,000 RMB, even up to 30,000RMB. Most of these lessons focused on improving their children's academic performance.

While asked about the reason for their expectations, 50% parents attributed it to the realistic context where the younger generation was under overwhelming pressure from the workforce. With more and more people could afford to study in university, it becomes highly competitive for undergraduates to find a decent job and to live comfortably. In order to make their children win the fierce competition, to lead a comfortable life, what parents in this study wanted to do was to push their children study hard and study well. As Taylor et al. (2000) noted that parenting cannot be understood unless it is placed within its economic, social, political, and historical context. In Chinese context, children's education is somehow a business for the whole family.

As another 20% parents noted, the current university-enrolment system is also a powerful force pushing them actively engage in their children's education. According to China's education policies, children cannot get enrolled in universities, especially "key universities" unless they can successfully pass the difficult university-entry exams. Slightly inconsistent with previous research, where Chinese parents' high educational engagement was attributed to Chinese culture tradition; in this study, only 30% parents thought they were culturally motivated to participate in their children's education, and influenced by the cultural tradition where people highly respect education, and expect for their children's academic success.

Take all together, it could be safe to make a conclusion that Chinese parents in this study not only highly expect for their children's education, but also actively involve themselves in their children's learning by extensively supervising home learning; frequently communicating school issues to their children and generously investing in

children's after-school training lessons. The most powerful driving force of their involvement was the high expectations for their children's future and the fierce competition coming from the workforce.

However, considering the sample of this research as middle-class Chinese parents, and the cultural and economic diversity in mainland, China, it would be cautious while generalizing the findings of this research to parents from other classes and other areas of China.

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Modern methodological approach to teaching business economics for it students

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Abstract

Effective performance of a university teacher involves not just the proper lecturing competence, but the application of the right methodological strategies to meet student's needs. As for the field of business economics, informatics plays an important role in information processing. The current labour market effects the university education to a large extent requiring a graduate of interdisciplinary knowledge and with the skills to find the solutions to both technological and economic issues. Project teaching method is one of the research methods oriented to students creativity, self- solution and integrated knowledge from several subjects. The process of project teaching method can be defined with the contents of individual activities. The projects activities are accomplished with their solutions and are followed by its evaluation. Of course, the project teaching method has both positives and negatives, but in terms of the effectiveness evaluation, the positives are prevalent.

Keywords: teaching methods, project teaching method, economics, informatics, university education

1. Introduction

There exist many teaching methods distinguished by a number of aspects (source of knowledge, level of student's active approach, operations of thought etc.). They transform the content of education into a particular teaching process. The university education in the Slovak Republic is perceived by both the experts and the general public in a traditional manner, which means that the education methods and forms are combined. A lecture, description and explanation are used the most. The current development trends of building the knowledge society and applying the knowledge management principles result in changes to the university education. The participatory methods and methods of experiential learning have been gradually promoted. "The main obstacle to applying the knowledge management principles in the Slovak institutions is unwillingness of people to share knowledge and make changes in their customary procedures and methods" (Sujová, 2012, p. 96)

From the viewpoint of content the changes to the university education relate to building connection between the disciplines required by the needs of practice. An example of connection between the disciplines is teaching economics in informatics. This means that the students will be educated in informatics, i.e. acquire knowledge for building the systems for supporting the decision-making, programming, applying the procedures and instruments for installing, implementing, operating and assessing the systems of information and communication technologies. In addition to the informatics-related knowledge and skills the students will be able to understand

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the system of economic information and its immediate connection to the business management process. By using information from the corporate information system and external sources they will create knowledge from the data, use them and demonstrate the output sets. In order to teach economics in informatics it is suitable to apply the project teaching approach. This method effectively contributes to development of creativity and flexibility in thought and conduct, which at present is a usual requirement in recruiting the university graduates by any company that attempts to increase its competitiveness and performance.

2. Teaching Methods

A teaching method is primarily characterised as the procedure for achieving the objectives of education. “A teaching method is the coordinated system of a teacher’s activities and students’ learning activities focused on achieving the objectives set by a teacher and accepted by the students”. (Maňák, 1990, p. 14)

Classification of methods is diversified; below is provided a systematic overview (according to Harausová, 2011, p. 8):

- Verbal methods, which include monologic (description, explanation, narration, lecture, interpretation), dialogic (debate, discussion, dramatisation) and methods of working with a textbook, book, text.
- Methods of illustrative demonstration include observation of objects and phenomena, showing objects, models, experiments, activities, demonstration of static images, dynamic and static screening, training of locomotive and work-related skills, students’ work in laboratories, work-related methods etc.
- Teaching methods according to the activity of a learning student are divided into narration and discussion, individual work of students, investigative and research activities.
- Teaching methods according to the operation of thought include comparative methods, inductive methods, deductive methods, analytical and synthetic methods.
- Teaching methods according to the teaching phases include motivational methods, exposure methods, fixation methods, diagnostic methods, application methods.
- Teaching methods according to the teaching forms of didactic tools are a combination of methods with teaching forms and combination of methods with teaching aids.
- Critical thinking development methods - Socratic method, the method of questioning, writing, essays, case studies, scenario method, the EUR thinking and learning strategy, etc.
- Methods of creative thinking development – heuristics DITOR, TRIZ, challenging questions method, checklist method, IDEALS, Quickstorming, Brainstorming, project method etc.
- Other teaching methods.

The essence of any teaching method stems in the way of achieving the required status. As illustrated in Fig. 1, the cooperation of three elements is necessary, namely a teacher, student and the content of curriculum. In the teaching process a university teacher acts as a facilitator of the content, helps a student in acquiring knowledge, explains knowledge through examples using an adequate selected teaching methods, points out at common features and connections, explains logical structure and connectivity. “A university teacher should be an excellent pedagogue, should have teaching skills and should be willing to apply them in teaching the students. A teacher should be a professional, who updates and makes lectures and exercises more attractive in order to make them as clear as possible for students and beneficial for the development of their personalities.” (Blašková, M., Blaško, 2012, p. 40)

A student acquires knowledge through an active approach. The level of a student’s active approach is directly proportional to the teaching method selected by a teacher, which has material impact on achieving the goals. Teaching method is therefore a way how a teacher performs activities affecting the way the student acquires

knowledge. “There is no clear-cut guidance on how to select the most appropriate and the most effective method. Selection of the appropriate method depends on the circumstances. It is advisable to alternate the teaching methods, which can be a part of the general change in the culture; however, the impact of the teaching methods on the content must be taken into consideration.” (Vodák, Kucharčíková, 2011, p. 111)

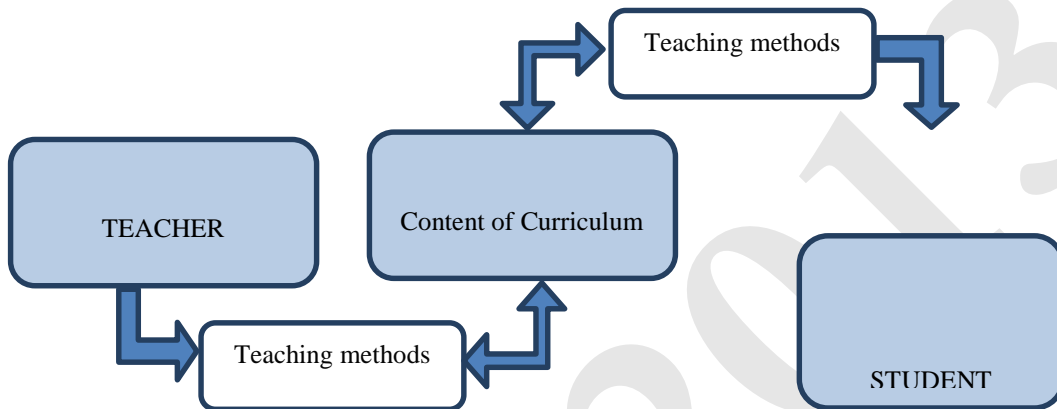


Fig 1. Interaction of Teaching Methods

Given the historical development the universities apply the teaching forms of a lecture, practical exercises, seminar, where in particular a lecture, description and explanation are used. They represent a combination of the teaching methods and forms.

3. Teaching Business Economics In Informatics

The current development trends in the area of informatics divide the discipline into the informatics based on the technologies and the informatics based on information. Teaching of the business economics is substantiated in informatics focused on processing information. The graduates of the Informatics program will be active in the area of economic application of the information systems (business entities, economic departments of the state administration authorities or self-government etc.) in the positions of users, administrators, IT professionals implementing information system settings according to the requirements of users in the business, and to a lesser extent they will work as creators of new information systems. At present the business information systems are based on the ERP systems (Enterprise Resource Planning), which are standardised systems, while creation of the information systems on the basis of business analysis is rather exceptional. They can be employed in both the private and public sectors. The curriculum content of informatics is focused on learning and using the methods and instruments of informatics and information technologies for managing, administering and economising the processes. As a practical discipline the business economics provides the entrepreneurs, economists and managers with information on how to run their business to achieve the highest possible performance and efficiency and how to ensure the status in the market in a challenging market environment (competition). The business economics is a social science discipline dealing with the internal business environment, namely explaining the objectives of a business, phenomena and processes occurring in the business, identifying and explaining positive

and negative consequences of certain conduct, and dealing with management. It is also focused on specification of production, banking, transportation enterprises, business connections and business enterprises.

The conditions for employment of the university graduates in the labour market are as follows:

- permanent education,
- knowledge obtained from several disciplines,
- ability to engage the managers' attention with the products, which can resolve their problems and contribute to growth of sales, reduction in costs, increase of workforce productivity and profit of the business,
- ability to look at the problem solving from the technological and business viewpoints.

Given the employment opportunities with a company, a graduate of the Informatics program will have competition advantage, if in addition to the knowledge of the information and communication technologies such graduate will use the technologies for creating the output sets concerning the business economics and subsequently will be able to assess and interpret them. The teaching process should react to the continuous interconnection between education and employment opportunities in the labour market. The graduates will add value to the information by its interpretation and identification of the context.

4. Project Teaching

The modern education trends put emphasis on the changes in the process of acquiring knowledge focused on building the student's abilities to survey, search and select required and electronically processed information and synthesise such information in coherent knowledge. "Knowledge represents successfully applied information and from the viewpoint of a business the relationship between information and knowledge is very important" (Jacková, 2008, p. 49). Introducing the exercise to students involves describing the activity itself, identifying objectives, providing key definitions, outlining procedures, giving examples, and then questioning to verify student understanding. (Johnson, Johnson, and Smith, 1991, p. 64-65; Barkley, Cross, Major, 2005, p. 67-70) The emphasis is put on building the ability of the students to deal with the huge quantity of new information and ability to use the information. Project teaching is one of the research methods characterised by the highest level of independence in the process of acquiring knowledge.

Project teaching represents an effective teaching method using progressive didactic methods and cooperative forms of work. The main objective is active participation of a student in the cognitive process. It is based on acquiring knowledge through activities, active relationship of a student with the natural, economic or social environment, where the problem is being solved. It is focused on student's experience and it develops thinking structures in association with the processes. Project teaching is the opposite of classical teaching methods, where a student is provided with particular isolated pieces of knowledge. In the project teaching the greatest emphasis is put on creativity of students and their own solution of the assignments, integration of knowledge and experience from several subjects and real life in resolving a particular problem. They learn the abilities of self-presentation, communication and independence.

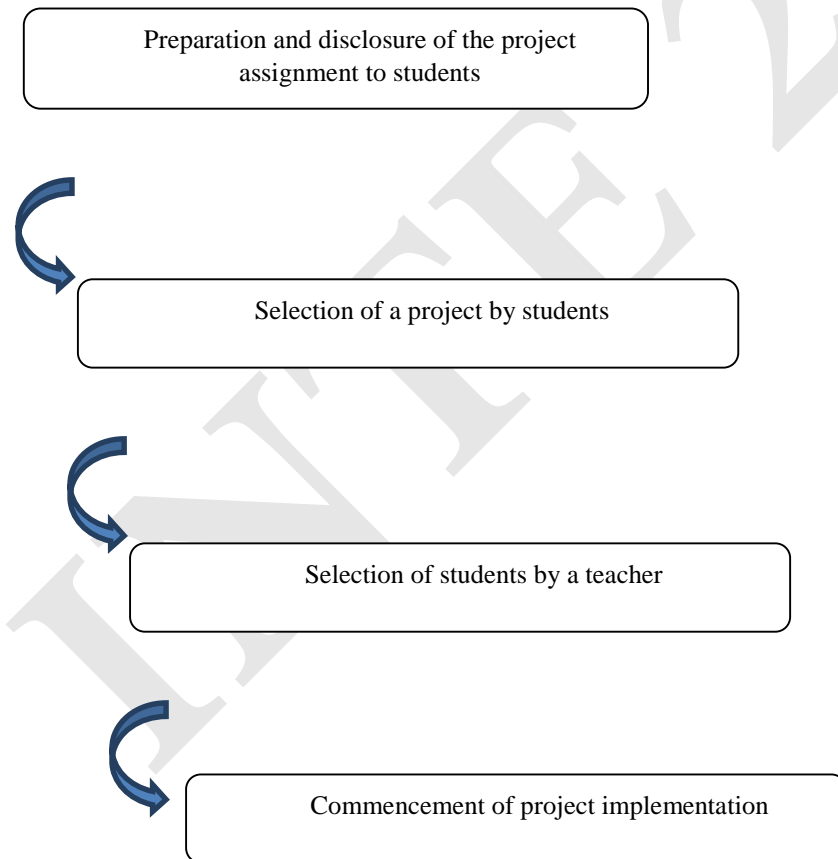
The project teaching represents a difficult process of preparation, process and evaluation of education. The summary of the individual activities is described in Fig. 2 Procedure of the project teaching.

In the preparation phase of the project teaching a teacher prepares the project assignment by defining a problem, setting the objectives to be achieved, partial tasks for achieving the objectives and working methods. This is followed by electronic publication of the project assignment on the faculty's website or school's intranet. The students have several weeks to get acquainted with the content of the individual projects and subsequently choose one of the projects at their own discretion. The project assignments are available to all students. The

number of students that sign up for a project may exceed the limit set by the teacher, who will then select the students for participation in the project teaching. Recommended number is two to five students per project.

The process of implementing the project commences by an introductory discussion of the teacher and students on the problem to be resolved. The students present their ideas how to resolve the issue, since they have information on the project assignment. During the project resolution phase the students consult the teacher and the teacher checks from time to time whether the resolution is on the right track. The teacher focuses on assessing and managing the elements and causal links of the problem (structure and content), decomposition into individual components, calculation methods, tools, methods, re-connection the analyzed phenomenon in the modified whole (system).

The last phase of the project education is evaluation of the implemented project. The students present their methods of resolving the problem and deduced conclusions. The time and place of presentation are disclosed in advance, hence the presentations can be observed not only by the project supervisor, but also by the opponents, other students and other interested persons. “An integral part of education is evaluation, i.e. comparing the objectives (desired behaviour) and outcomes (final performance) of the education. It is a feedback concerning effects of the education activities. Evaluation is important in order to take measures for improving education or ensuring effective application of the learned knowledge and acquired skills.” (Kucharčíková, 2009, p. 175)



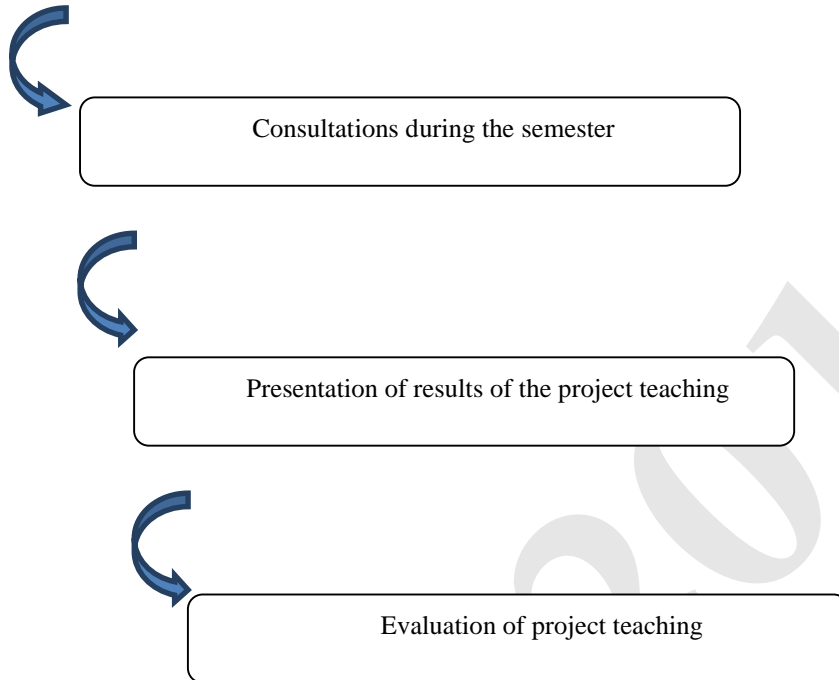


Fig. 2. Procedure of project teaching

The project teaching is motivational, relates to everyday life, it has investigative and research character, all of which represent its benefits. The project scenarios are of general nature and they are further elaborated in cooperation with the students in resolving the problem. Project teaching supports creativity and imagination.

Positives of project teaching	Negatives of project teaching
<ul style="list-style-type: none"> Building the students' ability to be independent in the process of acquiring knowledge, dealing with huge quantity of information, teamwork, creation of coherent knowledge, creation and interpretation of information. 	<ul style="list-style-type: none"> Time consuming for a teacher: outlining the project assignment, providing consultations from time to time, working with a small number of students
<ul style="list-style-type: none"> Connecting knowledge from several disciplines 	<ul style="list-style-type: none"> Time consuming for students High professionalism of the project supervisor

5. Conclusion

Teaching methods mean the procedure how a university teacher renders new knowledge to students. The companies select those university graduates which possess knowledge and skills from several disciplines. In practice we record refraining from hiring employees narrowly specialised in programming only. Interconnecting the disciplines has become a trend. Corporate information systems reflect reality of an enterprise. They are based on the modular principle, where the individual modules reflect economic areas of an enterprise. For reasons specified above the article deals mainly with justification of the need to strengthen teaching of the business economics in informatics. The article also includes brief description of the teaching methods and their classification; it justifies use of the project teaching due to its positives. Project teaching is divided into three phases: preparation of the project teaching, course of project implementation, evaluation of results. Each of them includes description of the performed activities.

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Motor literacy project as ideal setting for tests administration in SEN identification.

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Abstract

On December 27th, 2012 was signed the Directive on "Interventions Tools for pupils with special educational needs and territorial organization for school inclusion", which gives a clear outline on the inclusive strategy of the Italian school in order to fully realize the right to learning for all pupils and students in a difficult situation. The Directive extends to all students facing difficulties the right to an individualized and personalized path, drawn up in a Personalized Learning Plan, which aims to define, monitor and document the most appropriate intervention strategies and criteria for evaluation of learning. From this, first of all, it was felt necessary to build specific protocols for the identification of different categories of SEN and, in reference to that, our working group has decided to use the motor activity context (Motor Literacy Project in Primary School) as an exclusive acquisition and recognition resource: motor activity seen as free and total expression of personality, identity, creativity. Wondering if, previously, someone has already made a collection of evaluation tests aimed at this identification and, considering the division into seven SEN categories draw up by Ianes Dario (physical condition, body structures, personal skills, academic skills, environment, personal context), was processed through the list of some possible tools (tests) useful for the assessment of the presence or not of a hypothetical SEN category.

Keywords: SEN, tools, identification, motor activity, assessment.

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1. Introduction

On December 27, 2012 was signed the Directive on "Tools intervention for pupils with Special Educational Needs and territorial organization for school inclusion", which specifies the inclusive strategies of the Italian school in order to fully realize the right of learning for all pupils and students in a difficult situation.

The directive redefines the traditional and comprehensive approach to school integration, based on the certification of disability, extending the scope of intervention and responsibility of the educational community, to the entire area of Special Educational Needs (SEN), which includes: social and cultural disadvantage, specific learning disabilities and/or specific developmental disorders, difficulties arising from the lack of knowledge of the Italian language and culture, being members of different cultures.

The Directive therefore extends to all struggling students the right to an individualized and personalized path, drawn up in a Personalized Learning Plan (PLP), which aims to define, monitor and document, according to processing collegial, the most appropriate intervention strategies and criteria for evaluation of learning, referring explicitly to the principles set out in Law 53/2003.

The concept of Special Educational Need is a macro-category which includes all possible educational difficulties of pupils, the situations considered traditionally as a mental, physical, sensory disability, deficits in specific learning (dyslexia or attention deficit disorder) and several other problematic situations such as psychological, behavioral, relational, socio-cultural.

All these situations are different from each other, but in their diversity, there is a fact that makes them substantially equal in their right to receive individualized attention and effective education: all these people have few problematic aspect, which makes them more difficult to find an adequate response to their needs.

According to the World Health Organization, health is not the absence of disease, but a bio-psycho-social well-being: this is strongly related to social, cultural, economic, racial, religious dimension, that are not biostructurals.

A force that pushes in this direction is the strong and convincing spread that the ICF model (International Classification of Functioning, Disability and Health) of World Health Organization has had and still has in Italy, unlike other European countries.

The ICF model is radically bio-psycho-social and this forces us to consider the totality and complexity of the operations of the people, and not only the biostructurals aspects. It is outlined as a classification that aims to describe the health status of individuals in relation to their areas of life (social, family, work) in order to grasp the difficulties that can cause disability in the socio-cultural context.

Therefore, the ICF will not describe people, but their daily life situations in relation to their environment and emphasize the individual not only as a person with illness or disability, but especially highlight the uniqueness and totality.

The first innovative aspect of the classification emerges from the title. Unlike previous classifications where it was given ample space to the description of the individual diseases, using terms such as illness, disability and handicap (used in negative sense), in the last classification, the World Health Organization refers to terms that analyze health in a positive light (functioning and health).

Ianes Dario (2005) carries out the evaluation of the student according to the model ICF (International Classification of Functioning, Disability and Health, 2001), highlighting specific difficulties in seven main areas: physical condition, body structures, body functions, personal activities, social participation, environmental and personal contextual factors.

Body functions are the physiological functions of body systems, including psychological functions; body structures are anatomical parts of the body such as organs, limbs and their components; activity is the execution of a task or action by an individual; participation is the involvement of an individual in a situation of life; environmental factors are the characteristics of the social and physical world, and the attitudes that may impact on the performance of an individual in a specific context.

As we can see, the body plays a crucial role: through movement is possible for all discuss, questioning, meet each other, relate, perceive and communicate. This shows, in effect, that the subject does not manifest his being only through the forms of thought, but always and at the same time, through the modes of sight, perception, action (Canevaro A., 2007).

Movement in its educational form set, as its objective, the social collaboration, through which the subjects do not only act in a cooperative way, but they relate to each other through a process shared and consolidated. Physical activity becomes, therefore, for the disabled person, the exaltation of his residual capacity, of what he can do and what it can be (Gomez Paloma F., Sgambelluri R. 2012).

Starting from February 2010, as a pilot project, the government issued a Motor Literacy Project in primary school, implemented jointly by the Ministry of Education and CONI with the aim to promote and transmit the value of sport in the social fabric, as a factor of individual well-being and cultural and economic development.

The activities are aimed at the acquisition of motor skills and active lifestyles, in accordance with the Ministerial Directions for the Curriculum.

Through movement, therefore, the child can explore space, know his body, communicate and relate to others; physical education, lived in playful and fun form, then, becomes an opportunity to promote cognitive, social, cultural and emotional experiences.

Analyzing this context, and through the identification and administration of psycho-motor test, it will be possible, then, measure the level of skills and attitudes of the subjects, outlining the presence of any deficits or abnormalities in SEN area.

Normally, however, is not given to a unique and comprehensive test, but to a battery of tests that, measuring the different capacities, can provide a synthetic and analytic assessment, because each specific test contributes to the overall final assessment.

2. Objective

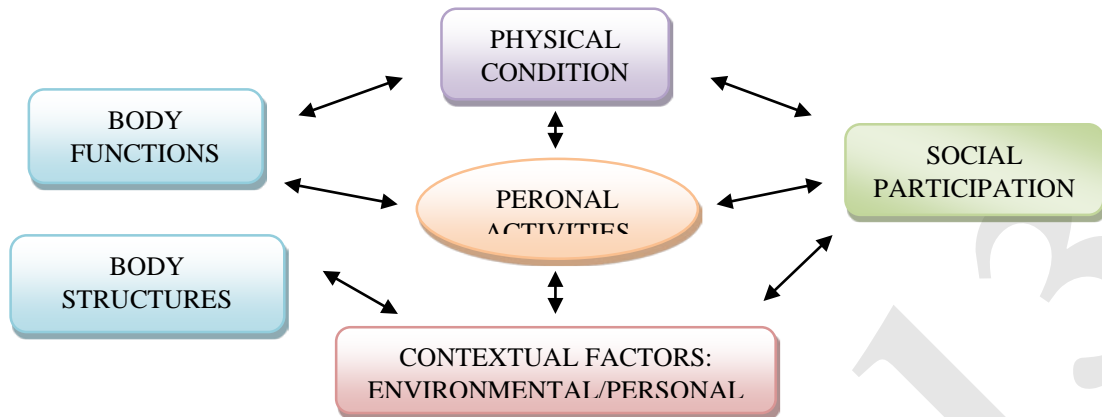
Wondering if, previously, someone has already made a collection of assessments tests useful for the identification of a presumed special needs in a student within a motor context (Motor Literacy Project) and, considering the division into seven categories of SEN by Ianes Dario, dividing it into two major categories (a clinical-physic area and a psycho-relational area), we have created a list of tools (tests) useful for their recognition.

3. Method

Based on a thorough analysis of the Directive cited above, considering, then, the Special Educational Needs that Ianes Dario, analyzing the ICF model, broken down into seven specific areas (physical condition, body structures, body functions, personal activities, social participation, environmental and personal contextual factors) and, dropping our attention in the context of the Motor Literacy Project in primary school, we made a collection of functional assessment tests useful to identify these areas.

However, to simplify the selection, there has seemed appropriate to make a further subdivision of the areas, according to two categories: one covering the clinical physics area and including the difficulties related to the physical conditions, the functions and structures of the body and the other concerning the psycho-relational area and including, however, the problems related to personal activity, social participation and personal and environmental contextual factors. Finally for some tests has been assessing both the advantages and disadvantages of administration.

Fig. 1. ICF model (2001); SEN identification (Ianes D., 2005)



4. Results

Among the assessment tools of the clinical and physical area we have chosen the TGMD (Test of Gross Motor Development), the ABC MOVEMENT (Movement Assessment Battery for Children), the VMI (Visual-Motor Integration) and the LAP (Learning Accomplishment Profile). This first group of tools is useful to identify and quantify any difficulties in movement that could compromise the educational and social integration of a pupil. As regards, instead, the assessment of the psycho-relational component, we have chosen the PSDQ (Physical Self Description Questionnaire), the PSPP (Physical Self-Perception Profile), The PASES (Physical Activity Enjoyment Scale) and the PSES (Physical Self-Efficacy Scale). Each of these tools is useful to assess all of this aspects that concern the motivation sphere, self-efficacy, self-esteem, emotionality.

Table 1. Clinical and Physical area

Test	Authors	Year
TGMD	Dale A., Ulrich	2000
ABC MOVEMENT	Henderson and Sugden	1992
VMI	Beery and Buktenike	1967
LAP	Sanford and Zelman	1984

Table 2. Psycho-relational area

Test	Authors	Year
PSDQ	Marsh et all.	1994
PSPP	Fox and Corbin	1989
PACES	Kendzierski, De Carlo	1991
PSES	Colella, Morano, Bortoli	2008

TGMD

The Test of Gross Motor Development (TGMD, Dale A., Ulrich, 2000) is a standardized test that measures gross motor abilities that develop early in life.

The test is used to:

- a) identify children who are significantly behind their peers in gross motor skill development,
- b) plan an instructional program in gross motor skill development,
- c) assess individual progress in gross motor skill development,
- d) evaluate the success of the gross motor program, and
- e) serve as a measurement instrument in research involving gross motor development.

The TGMD test kit includes the Examiner's Manual and a supply of Profile/Examiner Record Forms. The manipulatives used in the administration of the test need to be supplied by the examiner and consist of materials commonly found in schools and gyms and are available for purchase commercially.

It looks at 12 gross motor skills divided into two subtests:

- 1) Locomotor (run, hop, gallop, leap, horizontal jump, and slide);
- 2) Object Control (ball skills such as striking a stationary ball, stationary dribble, catch, kick, overhand throw, and underhand roll).

The child is given 1 for a pass, 0 for a failed attempt. There are no partial marks. Add the two trials together to get the total score for each performance criteria. Add the total scores for each criteria to get the skill score. At the end of each Subtest (Locomotor and Object Control) add up the 6 skill scores to get the Subtest Raw Score. High scores indicate better performance than low scores.

Strengths:

Test items are familiar activities and easy to explain

- Short time to administer (15-20 min.)
- Materials are commonly available in schools or child development centres and are inexpensive to purchase
- Detailed performance criteria increase reliability when scoring
- Each skill component is analyzed which can pinpoint areas in need of intervention
- User friendly illustrated guide for administration found in Appendix A
- Test items are a good composite of gross motor skills

Limitations:

- Needs a lot of room and a wall
- Test reliability – even at a coefficient of .95 there is still a 15% error built in.

Need to be cautious about making a judgement solely on the test results as they do not tell the whole story of why a child performed at that level on that particular day in that situation. There are other factors to consider such as poor motivation, inexperience, developmental disability etc.

ABC MOVEMENT

The ABC Movement (Henderson and Sugden, 1992) is the most commonly reported norm-ranked assessment used to determine the presence of Developmental Co-ordination Disorder (DCD) in school-aged children. The assessment provides quantitative and qualitative data about a child's performance of age-appropriate tasks within 3 subsections: Manual Dexterity, Ball Skills, and Static and Dynamic Balance. Performance is compared with established USA norms for children aged 4 to 12 years. The Movement ABC is a minimal task set designed to screen for motor impairment rather than provide a profile of a child's motor performance. It takes approximately 30 minutes to administer and requires no special training.

The test is administered according to 4 age bands, each with 8 age appropriate physical test items. Quantitative performance of each item (e.g. time of completion) is scored from 0 (best) to 5 (worst) and qualitative aspects of performance (e.g. body posture) are recorded using standard cues. Item scores are summed producing subsection scores, which are compared to normative tables to determine whether subsection performance is typical, suspect, or definitely impaired. Subsection scores are summed creating a total impairment score, to determine overall performance using the same scales.

Strengths:

The ABC MOVEMENT can be used by many professionals including therapists, teachers and nurses. Its testing procedures are straight forward and do not require interpretation. It provides some guidelines as to how to use the findings as a basis for intervention, which may, for example, suggest the therapist targets, 'static and dynamic balance' or 'ball skills'. If a cognitive operations approach is used in isolation (i.e. targeting only the actual problem activity) then such limited information may be of use for treatment planning.

Limitations:

Unfortunately the ABC MOVEMENT only reveals that a child cannot perform, without indicating why this is so. Further, it is unable to identify children with specific motor co-ordination difficulties such as poor handwriting and poor kinaesthetic abilities and does not provide information on motor planning, bilateral integration, or sequencing. Finally this tool is limited because the subtest scores were not sensitive to change (and should not be used to measure change), even though the total score may reflect change.

VMI

The Developmental Test of Visual-Motor Integration or VMI (Beery-Buktenica, 1967) is designed to identify deficits in visual perception, fine motor skills, and hand-eye coordination. It may be used to diagnose cognitive development disorders in young children through an analysis of visual construction skills. It can be administered to individuals from age two through young adulthood and can also be used to test adults of all ages, particularly those who have been disabled by stroke, injury, or Alzheimer's disease.

The Beery-Buktenica VMI test is used by physicians, psychologists, neuropsychologists, learning disability specialists, counselors, educators, and other professionals. It can be effectively used for the following purposes:

- to identify individuals who are having visual-motor difficulties
- to help diagnose visual-motor deficits
- to make referrals to specific professionals or services
- to test individual learning levels and educational programs
- to monitor the progress of individuals with known visual-motor or developmental difficulties

Limitations:

- Appropriate for Ages 0-6
- Child behavior can affect results
- No single test score is sufficient for making a diagnosis

Strengths:

- Serves as a research tool
- Assesses the effectiveness of educational and other intervention programs
- If identified early on the test makers offer tons of resources to help children get to the level they need to be.

LAP

The Learning Accomplishment Profile (LAP, Sanford and Zelman, 1984) provides a systematic method for observing the skill development of children functioning. The purpose of this criterion-referenced assessment is to assist teachers, clinicians, and parents in assessing individual development. The LAP contains a hierarchy of 414 developmental skills arranged in chronological sequence in six domains of development:

- gross motor (90 items)
- fine motor (73 items)
- cognition (105 items)
- language (59 items)
- self-help (49 items)
- social-emotional (38 items)

As a norm-referenced assessment, the LAP has a number of useful applications for the evaluation and instruction of young children. LAP results may be used in the following ways:

- to determine a child's developmental age in relation to his/her chronological age in the various domains;
- to provide individual skill development information for planning developmentally appropriate activities at home and school based on a child's performance relative to a standardized score. Identification of developmental levels assists teachers in determining the appropriate "starting point" in curriculum planning;
- to evaluate a child's entry and exit skills and/or to validate the intervention program. As a pre-assessment measure, the LAP is a consistent record of the skills the child has mastered prior to admission into the program. As a post-assessment measure, the LAP is useful for the determination of a child's progress and may be useful to parents, teachers, and program evaluators in determining if the instructional program is having a beneficial effect on the child's development,
- to conduct research on the development of preschool, kindergarten, or special needs children;
- to train teachers, paraprofessionals, clinicians, and parents on developmentally appropriate assessment practices.

PSDQ

The Physical Self Description Questionnaire (PSDQ, Marsh et al., 1994) is a 70-item scale designed to measure 10 facets of physical self-concept, along with general self-esteem. More specifically, the instrument is composed of 11 subscales, nine of which are designed to tap perceptions of self related to specific areas of physical fitness and competence, one that measures self-perceptions of global physical competence, and one that

measures global self-esteem. Each of the 70 PSDQ items is a simple declarative statement, and individuals respond on a 6 point true–false scale. The purpose of this test is to see how people describe themselves physically, asking to think about themselves physically. For example, how good looking they are, how strong they are, how good they are at sports, whether they exercise regularly, whether they are physically coordinated, whether they get sick very often and so forth.

It is not necessary to provide identifying information such as names, however, the data should include, age, gender and the country or area of administration and some general description of the respondents, or teachers, or psychology students, etc.

PSPP

The Physical Self-Perception Profile (PSPP, Fox, 1990; Fox & Corbin, 1989) is a 30-item inventory that consists of four specific scales and one general physical self-worth factor. The PSPP was developed to document the physical self-perceptions of college students. It consists of five 6-item scales of sport (perceived sport competence), body (perceived bodily attractiveness), strength (perceived physical strength and muscular development), condition (perceived level of physical conditioning and exercise), and physical self-worth.

PACES

The Physical Activity Enjoyment Scale (PACES) was originally developed by Kendzierski and De Carlo and was made up of 18 items with responses on a 7-point bipolar scale. The scale proposed to assess in general the degree to which an individual liked to practice any kind of physical activity. The new version consists of 16 items with scores given on a 5-point Likert scale, from 1 (completely disagree) to 5 (completely agree). A high score on the positive scale and a low score in the negative one indicate a high pleasure in physical activity. It is also possible to calculate a total score, reversing the scores of negative items and adding them to positive ones, with this procedure, the total score of the PACES can vary between 16 and 80 points.

PSES

The physical self-efficacy (PSES, Colella, Morano, Bortoli, Robazza, 2008) is a 6 items scale based on the physical self-efficacy scale to assess children perception of personal strength, speed, and coordination. Response options ranged from (1) to (4) point format, for example the fourth item, (1) I move very slowly, and (4) I move very rapidly. Children were asked to think of themselves when playing or when involved in physical and sporting

activities. Items 1, 3, and 5 are scored 1-4; whereas scores of items 2, 4, and 6 are reversed. Making the total score to be ranged from 6-24. Higher scores indicate greater self-perception of physical ability.

5. Discussion/conclusion

Through the identification and administration of psycho-motor test, it will be possible, measure the level of skills and attitudes of the subjects, outlining the presence of any deficits or abnormalities in SEN area. Being

aware of the presence of a pupil in difficulty recognizes the latter the full right to an individualized path, drawn up in a Personalized Learning Plan that aims to define, monitor and document the most appropriate intervention strategies. Moreover, in the future, thanks to the collection, analysis and standardization of tests data, it is possible to create an online platform accessible to all, which are selected for each category, ranges of values indicating the positivity or negativity of a specific category.

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Multimedia educational programs for improvement of occupational safety awareness in construction industry

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Abstract

One of the most effective ways to improve health and safety conditions in construction sites rests in sound education and training of people incorporated in construction planning, managing or executing. In our region, the creative approaches are essential to encourage new methods to teach health and safety in a stimulating way. In the paper are presented two multimedia educational programs, both centred on development of construction safety awareness through unconventional teaching techniques. The first one is addressed particularly to designers or future designers and is focused on implementation of well known concept of "Prevention through design (PtD)". The second educational program was prepared and realized within practitioners from construction companies participating in construction projects execution as project managers, site managers or workers. The last part of the paper deals with the effectiveness of safety education in Civil Engineering students.

Keywords: construction, occupational safety, safety education and training, virtual building modelling, teaching techniques

1. Introduction

The construction is one of the most physically demanding and risky sectors. Despite many efforts to enhance site safety performance, construction in European Union still accounts for a disproportionate number of occupational related injuries. The most common results of accidents are absenteeism, productivity loss, and permanent disability and even construction site fatalities. The majority of construction fatalities in the worldwide results from falls from height, burial by earth collapse during excavations, struck by a moving vehicle, motor vehicle, etc. The poor health and safety records in construction are generally influenced by these reasons (Fung et al., 2010): high-risk nature of construction work, building terms decreasing, insufficient health and safety solutions in phase of construction preparation, low demands on site facility according to law, complicated contractor system with big amount of subcontractors, thin exercitation of collective protection and technical safety by reason of the building costs increasing, low level and absence or malfunction of safety management and control systems especially in small construction companies and tradesman, as well as low knowledge and a serious lack of construction safety risk awareness of persons in industry. It is not unusual that poor safety conditions at the site are caused by unsuitable behaviour of the workers in their tasks performance and by wrong decisions made by their supervisors, site managers. Going around building sites, we can see insufficient using of personal or other (collective, technique, etc.) protection equipments, what can be known as high gambling with workers health and lives. All the same, it is routine that people at the site are not able to recognize the

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occupational safety risks covered in the building project, they are oblivious of right manipulation for example with toxic materials, etc. Even though, workers and managers from these sites have passed some “occupational safety trainings”, usually based on many rules memorizing.

One of the most effective ways to improve health and safety conditions in construction sites rests in responsible development of construction safety risks awareness and sound education and training of people incorporated in construction projects planning, managing and executing. Sound safety training is a credit for strong safety performance and it is an essential element in developing excellence. According to Vredenburg (2002), a well-designed and administered training programme should emphasize safe work safe work practices and be derived from a true assessment of need. By doing preliminary pilot study to the industry using interview questionnaire survey, Sulastre and Faridah (2012) concluded that an effective safety training belongs to ten major factors that can give positive impetus towards improving safety compliance in the construction industry. Training and education programs play a significant role in enhancement of safety in construction and are important to increase safety awareness (Ghani et al., 2010) and change behaviour of employees (Wong et al., 2000).

2. Multimedia-based educational program aimed at implementation of Prevention through Design concept

2.1. Construction Hazard Prevention through Design

The necessity of incorporating the question of safety into the construction process early on has been an over again theme through more than last twenty years. The ideal situation for the safety of the construction workers is to make this an important parameter for the planners and designers of the conceptual and preliminary design phase (Toole and Gambatese, 2008). Prevention through Design (PtD) is a fundamental concept within the field of occupational safety and health. When designing a work environment, it is better to design out the health and safety hazards than to simply protect the workers from, or warn them of, the hazards (Manuele, 1997). Application of the PtD concept in the construction industry is challenging. The PtD denotes mostly considering the safety of construction workers in the design of a construction project and being conscious of and valuing the safety of construction workers when performing design tasks.

The European Union have appreciated the beneficial impacts of PtD and is leading the way through European Union (EU) directive of 1992 (Council Directive 92/57/EEC of 24 June 1992) concerning minimum demands for health and safety at temporary construction sites. In the directive, the role of the building planner, be it the client as well as the architects and designers, is emphasized as having the responsibility for taking account of the general principles of prevention concerning safety and health during the stage of designing and preparing the project. The directive principles were transposed to the Slovak legislation in 2001, when the Slovak Republic had been preparing to join the EU.

Unfortunately, the idea of workers safety consideration in designing phase of construction projects is often remaining only on the level of legislation article and its implementation in construction practice is rare. Most designers in Slovakia are still satisfied that they are not responsible for construction workers safety. Few of them have recognized the process of incorporation the workers safety issues into construction project design phase, but they misunderstand how to provide it in their practice. They are convinced of their too low construction safety awareness. Their knowledge about the ways to detect and eliminate the construction safety risks is minor for construction workers safety respecting in their architectural, constructional and technical solutions in the design phase.

2.2. Development of the program in the Faculty of Civil Engineering in Kosice

In Slovakia, only students of construction management field of study attend the course intent on construction health and safety knowledge. There is the absence of safety education and training of future architects or designers. No or minimal construction site safety in designer education and training and lack of knowledge of how to design for safety belong to the most meaningful barriers to PtD implementation (Gambatese, 2012). The successful implementation of PtD concept into practice surely depends on design engineer experience and training in the field of construction safety. The creation of suitable supporting tools focused on effective development of skills for early detection of construction safety risks in the design stage and consistent revision of the design solutions or protection equipment planning is inevitable. This need is in the Faculty of Civil Engineering in Kosice satisfied by development of the multimedia-based educational program centered on implementation of PtD concept through increasing the designers' construction safety awareness. According to Gambatese et al (2008), PtD education efforts should cover not only university education but also continuing education. The materials of the presented educational program are convenient for construction safety skills and competences development through lifelong education of practicing designers. The objective of the program comes from the need of establishing the multidisciplinary approaches in construction project design education. It assuredly contributes to increasing the designers and future designers' competences for construction safety risks elimination in the early stage of construction project. The main objective of the program consists in integration of construction safety risks issues into education centred on buildings design. The educational program is developed as the multimedia-based interactive source for e-learning.

2.3. The role of digital design technologies in safety education of designers

The innovative approaches to construction safety management, as well as consideration of construction workers safety in the design phase, are (Zhou et al., 2012) deeply connected with application of digital design and in particular with the building modeling in virtual environment (particularly 4D Computer Aided Design and Building Information Modeling). The potential of digital technologies widely used in designing buildings for creation of design/construction visualization tools focused on design for construction safety implementation is clear.

In the Faculty of Civil Engineering in Kosice are good conditions for application of digital design technologies to enhance designers' skills for PtD implementation. There is an excellent virtual laboratory equipped by high-efficiency computers including right software available for various approaches to construction projects design, operative planning and management. For example, Tekla Structures, Autodesk Navisworks, Revit, 4D Google SketchUp, Solibri Model Checker, etc. (enabling 3D coordination, 4D planning, photorealistic visualization, dynamic simulation and accurate analysis) suit to creation of tools for automated detection and elimination of construction safety risks in designing stage. Such tools can present the base for designers training through unconventional teaching techniques in order to increase their awareness for implementation of PtD concept.

2.4. The complex of the program objectives

In order to realize the mission of designers safety awareness increase, the program involves several partial objectives, among those belong:

- drawing attention to imperativeness associated with establishment of approaches into construction safety risks reduction through building design,
- modifying form and contents of educational and didactic materials and tools in compliance with development

of progressive attitudes to solutions of construction safety risks issues during building lifecycle emphasizing the sustainable construction safety and health,

- facilitating construction safety risks analysis and building designs assessment from health and safety point of view through building information modelling (BIM),
- creating the conception for implementation of occupational safety planning approaches in designing stage into integrated building designing within inventive seminars focusing on occupational injuries prevention,
- enforcing the utilization of digital technologies potential for purpose of creating the tools for automated detection and elimination of construction safety risks in designing stage,
- pressing for incorporation of innovative construction safety planning approaches into lifelong education of architects and building designers,
- ensuring the integration of construction safety risks minimization issues into education focused on building designing in design studio seminars,
- promoting innovations of teaching process by creation of interactive distance educational resource for e-learning,
- allowing learners the creation and communication in an interactive virtual educational environment and so developing their logical and critical thinking,
- motivating learners (by unconventional innovative education technique) to increased concern over creation of self logical verdicts and solutions in field of building designing from construction safety point of view,
- allowing training of variant solutions for complex construction conditions encompassment from construction safety point of view
- realizing the support for the knowledge base development by sharing the pieces of knowledge from foreign internet portals containing the newest information about approaches to construction safety improvement through building design.

2.5. *The contents of the program*

The before mentioned objectives of the educational program are going to be reached by multimedia file of educational sources involved in the program. These sources support the performance of the developed program idea. The multimedia-based files of educational sources include:

- the interactive training tool “Virtual Prevention through Design Tool (VPtDT)”, supporting the effective skills development in field of automated construction safety risks detection and elimination during building designing in dynamic, virtual designing environment (the tool is developed on building information modelling platform and is aimed at selected fields from the key construction safety risks point of view, e.g. excavations, work at height, demolition works, etc.) ;
- the instructional module “Prevention through Design Manual (PtDM)”, containing the set of directions that navigate the learners (users of VPtDT) to its effective exploitation;
- the collection of virtual building models “Virtual Building Models (VBM)”, destined for training and verification of active participating skills in construction safety arrangements’ planning by means of VPtDT;
- the set of educational virtual (multidimensional) presentations simulating the model situations of construction process “Construction Safety Case Study (CSCS)”, that are utilizable for attitudes to construction safety risks reduction training by so called “experiential learning”.

The most meaningful benefit of the program for the Faculty of Civil Engineering in Kosice consists in innovation of educational material (sources) and methods centred on designers training and education from occupational safety risks elimination point of view. Digitalization and accessing of these teaching aids is going to support the presentation as well as the distance form of learners’ education.

3. Developing practitioners skills in construction health and safety and prevention

Although many construction companies in our country have introduced safety and health management system, such as OHSAS 18001 and have discovered the productivity and performance advantages of this approach, success has not been universal. Practically, managing working conditions change is impossible without employee participation and participation is impossible without understanding. This understanding allows the employees to participate in the safety management effort, and helps improve the safety performance of a company. In safety and health management initiative of a company the employees are the ultimate actors and play an important role, they implement the changes in behaviours and routines that are required to reach the targeted improvements in safety and health performance of the company. Employees' participation is important, they should be an important source of knowledge, expertise, and ingenuity when it comes to the company, its procedures and its equipment. In a construction company, participation that leads to better safety and health performance relies on utilization of project managers, site managers and workers knowledge.

Construction companies in Slovakia are in last twenty years inevitably required to adapt to an increasing social demand for safety and health awareness. One of key aspects or necessary conditions for a successful occupational safety management effort in company is the presence of effective safety education and awareness training initiatives. This provides employees, at all levels of the company, with the tools and understanding necessary to conduct themselves in safety aware manners. As much, work-related injuries are often associated with insufficient knowledge and unsafe behaviours of both, employers and employees. Employees tend to have poor attitudes toward safety and health cognition and do not have enough training to manage their risks in the workplace; they have low occupational safety knowledge and mainly low safety perception. Employees should be brought to understand how they may contribute to the efforts for safety performance improvement endorsed by the company. Without their ingenuity and expertise, the safety management initiatives of company may be limited to a number of technical improvements and omit large efficiency gains initiated by the work force. Occupational safety education and awareness training programs are an important part of changing the way businesses conduct their activities. All construction companies should find it necessary to train their staff in safety issues if they wish to survive in a market where it is no longer sufficient to excel in price competitiveness exclusively, but where quality, service, environmental and safety standards also play an important role.

3.1. Teaching techniques in safety education in construction sector

In terms of employees' education and trainings in a company, the target group should be divided upright, according occupational safety responsibility: managers, front managers, ordinary employees divided following the work done type, eventually according to work position. Different work positions require different safety trainings and methods to obtain efficient training results. The aspects of training that need to be considered imply (Faridah et al., 2012): regularity/ time, new employees, effectiveness, performance requirement and specific job safety/ need.

People have assumes, sensual, mental and physical strengths to approach an education consciously, to seek purposely to acquire the needed knowledge and information in favour of themselves and their company. The contents and division of curriculum should be in accordance with previously acquired knowledge of learners and with their overall level. Safety education should be performed in direct relation to employee` professionalism and work activity. Education does not consist only in curriculum providing, it must be adopted and established so that the workers (learners) could retrace and use it at any time. The principle of permanent approach is known as the need of education continuity, continual renewal of knowledge so that the employee was able to react adequately

to changing work conditions and requirements. This principle is applied in safety re-trainings of employees. Education comes from practice, after theoretical reasoning it returns to practical application of theoretical knowledge. So, the most mentioned didactical principles of safety education involve (Kozlovská & Struková, 2010): principle of awareness and activity, principle of illustration, principle of adequacy, principle of durability, principle of systematic and permanent approach and principle of theory and practice unity.

According to Mollahoseini and Shahrooz (2012), the effectiveness of training depends on well designing and implementation of training, learner involvement, learner attitude change, provides opportunity to application new skills and knowledge in workplace, job commitment, top managers views for training, and connection training to organization's vision and strategies.

Teaching techniques in safety education in our construction companies are traditionally based on memorizing the standards and regulations concerning occupational safety in construction. There are still preferred lectures that are considered as a way to introduce new information to a group of learners. But the goals of safety education and improvement of awareness should be better achieved through some forms of practices, by creation and analysis of model situations, eventually by modern information campaigns and promotion actions (posters, eye-catchers etc.). Lectures are often one-way, monotonous, directive and so encourage passivity. Furthermore it does not promote interaction in most cases; the view of the speaker dominates. Many trainers had been teaching their modules for a long time, they are reluctant to change the tried and tested formula and they are not keen to experiment with different types of learning as opposed to the traditional “talk” method. Hence, teaching styles and techniques in safety education should be changed and noticeably moved from lecture-based activities towards more learner-centred activities. People can learn more effectively when are actively involved in the learning process.

The case studies demonstrate successful application of problem-based learning in civil engineering, planning and urban development amongst others (Centre for Education in the Built Environment, 2005). Teaching through case studies is considered as an increasingly popular form of teaching and have an important role in developing skills and knowledge of learners. Through a carefully planned and staged sequence of problems within a professional context, learners can acquire subject knowledge and practical skills in certain problem domain. Problem based learning allows the development and application of student-centred activities using a series of problems or scenarios. At the first stage of problem-based learning, learners are encouraged to use their prior knowledge and discover what issues associated with the new knowledge need further study. Then, learners are activated to search for additional resources to study those identified issues. This approach is one way in which active learning strategies can be implemented in real situations. Case studies can be used to allow the application of theoretical concepts to be demonstrated, thus bridging the gap between theory and practice and encourage active learning. Many case studies are group-based. Learning to collaborate is a useful skill and the ability to produce a group output is an important part of this. Learners are required to produce one or more outputs between them and to present their work in a variety of formats, mainly in oral presentation that improves their presentation skills. Group working has other benefit of allowing students to share their personal knowledge and experiences. This method can be known as the opportunity to provide someone's experiences to the group in the form of a case study. These experiences are reflected upon and analyzed by the learners to then extract or arrive at new principles. The learners' own experiences, values and feelings form the basis for analyzing others' experiences.

The discussion within the group is done on the basis of learners own past experiences, attitudes and values, from which they arrived at new knowledge and new insights.

Another one non-formal teaching method that could be applied for safety education is a role-play. This method can be used in a variety of ways. One of the ways is that a role-play is a re-enactment of past experiences. All learners are involved to enact an issue or a situation about which they are familiar in their past working at some construction site. This approach is particularly useful where learners share a somewhat similar experience and that experience or issue is difficult to recall because of its emotional valence.

3.2. The educational program for improvement of company employees awareness in occupational safety

Occupational safety and health education of company staff is usually delivered through some educational program and should seek to change the learners' cognitive, affective and participatory knowledge, skills and behaviour. The educational program that we have prepared and realized lately among construction sector practitioners is in general intent on improvement of occupational safety awareness in the sector. Project managers, site managers and workers from a well known and successful construction company acting at our region market took the courses where some unconventional teaching methods (in particular role-playing, paper-based and skit-based case studies and audio-visual methods) were applied. Training methods and topics are tailored to different work positions. The mentioned company is heavy engaged in occupational safety management efforts. It is many years seeking to be an industry leader in occupational health and safety, ethics and environment. This part of the paper deals with our experience of implementation of this training activity type.

The activities within the courses, based on topics demonstrating theoretical concepts in an applied setting, have been centred on learners, on their creating and individual approach to problems solving. Such method of education refuses the legislation memorizing; it develops awareness and inculcates consciousness to the people about the occupational safety and health. Thus, they have more ideas of how they could enhance their participation in promoting all means of positive ways that could benefit them and their working environment. Using of authentic audio and visual information about real events bring more intensive optical, acoustic and sensational perception, what usually leads to better health and safety prevention training. Hence, it is not just about learning, it is about understanding the safety issues and changing workers behaviour, so they can build healthy and safe working environments at the sites. There is anticipation for creation of safety responsibility sense in each worker in the sector.

Our role of coordinator consisted in preparing the manual of training course, the activities within it, in planning the schedule for the day, in planning how to work within and working through the exercises and activities. As trainers-facilitators we instructed, motivated and guided the participants by demonstrating enthusiasm for the topics covered in the course and for the work that the participants were doing and we were receptive to each participant's question and needs. We tried to promote a friendly co-operative environment and usually responded positively to the question put up by the participants. The training program for 400 employees has been designed as a 160 hour course (20 days per 8 hours). Each day another group of 20 employees (separately project managers, site managers or workers) attended the eight-hour course. In addition, the learners solved a few of cognition and attitude tasks pertinent to the problems of occupational safety in construction project execution. For this goal, the group of 20 employees was divided into 4 small groups. People in groups were clearly instructed about the task, time for solution and the form of the results presentation. Each small group presented its results and discussions to other three groups. Discussions and the task solution within one small

group without subsequent presentation and summarization are not worth having. It allowed the learners to be in control, in respect of pace, content and focus. People had opportunities to express themselves. So they could validate their knowledge and skills and clarify, reflect and reconfigure their experiences. Learners seem to learn better or solve more problems correctly when they collaborate with other people, especially when the task is conceptual and complex.

In the end of each course day, the participants completed a questionnaire where they answered few closed and open-ended questions, where they could declare whether such educational approach is meeting the objectives set for it in terms of increasing learners' enjoyment, motivation, content coverage and depth of learning. Participants were invited to fully explain their views and justify their answers. Method of case study dealing with analysis of cases rising from real and simulated situations became the most preferred technique among learners. The learners were keen to discuss among themselves about concrete problems connected with the case. Participants learned each other and sometimes were able to devise original before unknown approaches into some problem solution. The participants appreciated that few of audiovisual case study shots were recorded at their own workplaces, construction sites. This resembled to one perfect unconventional non-formal prevention tool based on watching instructional films made in real construction site where these people work. Learners well know the site, activities and working people. Therefore the problem of occupational safety was perfectly implemented to real situations in which they are everyday. They could find there themselves and could see with hindsight what was done bad or good and so they could learn from that. Such "mirror" presentation and following heated discussion by employees, why did they something so and why no differently, certainly made in their minds more permanent knowledge. Similar "films" could be shown also to workers of subcontractor or to tradesmen so that the company can communicate them by such informal way, what approach to occupational safety is required.

4. Effectiveness of occupational safety education in Civil Engineering students

In order to compare the effectiveness of conventional vs. unconventional teaching method in safety and health education in Civil Engineering students, we decided to conduct a small experiment. Students from our faculty attended the lessons aimed at occupational safety risks reducing in excavation works, concreting works and works at height. Forty students divided into two groups (twenty students in each group) passed their lesson within two different courses. Teacher was the same and time duration of education was the same in both cases. In the first group, the teacher applied the conventional lecture based educational method. During two-hour lecture, the teacher explained the main safety rules of excavation, concreting and at height works and the principle of identification, assessment and controlling of occupational safety risks relating to before mentioned construction works. Education of students in the second group was different. The teacher applied the video scenes, visualising the various situations from the site during excavation, concreting works and works and height. The role of the teacher consisted in commenting these situations and in supporting the educational value of the scenes by providing the beneficial information about health and safety risks perception, identification, assessment and controlling during construction works. After lessons the level of the all students knowledge was checked, in particular their ability to perceive the safety risks in real situations from construction site was estimated. The teacher showed all of them seven different video scenes (not before presented) representing the situations/cases from a real construction site. On the basis of introduced shots, the students from both groups were asked:

- to identify all occupational safety risks covered in the situations from construction works execution and
- to suggest the most suitable measures to avoid the identified risks.

The results of the students' occupational safety awareness, estimated based on the mentioned methodology, is presented in Table 1. There are the percentages of students those solutions of two presented tasks was right.

Table 1. The percentages of students with right answers

Cases/Shots	Topic	Identification of occupational safety risks		Suggestion of suitable measures	
		First group (Lecture based)	Second group (Video scenes)	First group (Lecture based)	Second group (Video scenes)
Case no. 1	Sheeting	55 %	80 %	40 %	55 %
Case no. 2	Foundation pit	30 %	85 %	15 %	75 %
Case no. 3	Excavators	70 %	75 %	30 %	60 %
Case no. 4	Reinforcing	65 %	95 %	65 %	90 %
Case no. 5	Formwork	80 %	70 %	40 %	55 %
Case no. 6	Roofing	35 %	60 %	20 %	60 %
Case no. 7	Multi-story building	75 %	75 %	45 %	65 %

From the results in Table 1 is evident that the right answers/solutions of tasks answered on the basis of presented video shots were more frequent in students from the second group. These are the students which were educated by using of video scenes as one of effective unconventional teaching method.

5. Conclusion

The ideal situation for the safety of the construction workers is to make this an important parameter for the planners and designers of the conceptual and preliminary design phase. But, no or minimal construction site safety in designer education and training and lack of knowledge of how to design for safety belong to the most meaningful barriers to implementation of PtD concept. Construction health and safety education of practitioners in our country is seldom linked to the immediate workplace of the participants and practical solutions are seldom promoted in this education. Teaching practices in practitioners' safety education often tend to be limited to the transmission of knowledge rather than to promote a critical examination of safety problems. The result is that people know legislation concerning their work. But application in construction site is worse. Principles of environmental protection and occupational safety must be embedded mainly in all people awareness (from top managers to "last" assistant laborer), not only in law. The effects of non-formal approaches and techniques in practitioners' education are considerably higher than formal approaches effects. People much actively discuss about some problems if they are applied in real case or real situation. Evenly they submit by themselves their own cases – situations from sites leading to injuries.

In the paper are mainly discussed the two educational programs, both centred on development of construction safety awareness through unconventional teaching techniques. The first one is addressed particularly to designers or future designers and is focused on implementation of well known concept of PtD. In order to the mentioned concept implementation is inevitable to create the supporting tools to effective skills development for detection of construction safety risks through virtual building modelling and for relevant building design revise or protective equipments planning. The second educational program has been prepared and realized in practitioners from the

construction company, participating in construction projects execution as project managers, site managers or workers. The idea of the program prefers the motivation to construction safety risks issues understanding rather than memorizing the legislation principles. Moreover, the brief estimation of safety education effectiveness in Civil Engineering students is presented. The estimation acknowledged that the perception of construction safety risks is higher in students educated by innovative non-formal teaching techniques.

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Multimedia in test items: Animated questions vs. static graphics questions

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Abstract

There have been extensive studies regarding the use and efficacy of multimedia in education. Although testing and evaluation is another important stage of teaching and learning processes, few studies have been identified in the literature that examine the use of multimedia while measuring students' achievement. In this study we used two different multimedia in presenting an English achievement test. The question items were either presented with static graphics and text or with animated graphics and text. Two different formats were compared in terms of response time and response accuracy. Findings are addressed and discussions are made in the paper.

Keywords: multimedia learning, cognitive load theory, multimedia in testing.

1. Introduction

Cave drawings state people have been fond of using visual images since prehistoric times to express their feelings and thoughts. After a few thousand years following prehistoric times, visual images were transferred from from cave walls to printed books. Nowadays, with the advancement of digital technologies, visuals are not only in printed books but in every aspect of our life. It is for sure that we are living in a more visualized world than a few decades ago (Avgerinou, 2009). Academy has raised a question about this phenomenon: "Why do we use visuals in books and such other learning resources?"

Mayer (2001) answered the aforementioned question with a brief sentence: "People learn better from words and pictures than words alone". He coined the term multimedia learning which refers to the learning from words and pictures (Mayer, 2009). There have been a vast amount of researches focused on the use of multimedia in learning environments. Findings revealed some general rules about how to use multimedia effectively in designing instructional materials. Modality (Kalyuga, Chandler and Sweller, 2000), split attention (Chandler & Sweller, 1992), redundancy principles (Kalyuga, Chandler & Sweller, 1998) are some good examples of these general rules. The principles of multimedia learning are in line with two other theories which explain human cognitive architecture: Working Memory Model (WM) and Cognitive Load Theory (CLT).

The working memory model proposes there are two codes processed by human mind: verbal code and visual code (Baddeley & Hitch, 1974). Phonological loop, visuospatial sketchpad and central executive are the three main components of the Baddeley's WM model. While phonological loop processes speech-based information,

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visuospatial sketchpad processes visual or spatial information. The role of central executive is to develop strategies in merging and integrating verbal and visual codes processed separately by phonological loop and visuospatial sketchpad (Reed, 2006). Baddeley (2001) also introduced the Episodic Buffer component which is able to translate visual and verbal memory codes to each other “such as mentally forming a visual map from verbal directions” (Reed, 2006). In working memory or short term memory, people are able to process two or three items of information at the same time (Kirschner, 2002). Therefore there is a need to regulate information presented to the learners not to exceed their limits of short term memory. Humans also have a Long Term Memory (LTM) where our permanent knowledge is stored and is believed to be unlimited (Kirschner, 2002). WM model had substantial impacts on human cognition architecture theories, specifically in the development of CLT.

The history of CLT goes back to 1980s and the theory had a significant development in 1990s (Paas, Renkl, Sweller, 2003). CLT is concerned with means to overcome the limitations of the working memory. Because human working memory is limited (Baddeley, 2001) and can only process at most 7 elements of information at a time (Miller, 1956), the cognitive load in the working memory should be altered to assist passing of information from limited WM to unlimited LTM. There are three different cognitive loads present in the WM.

Intrinsic cognitive load is about the inherent nature of the learning material (Kirschner, 2002) which depends on the interactivity of elements that should be processed simultaneously in the WM and expertise of the learner (Van Merriënboër & Sweller, 2006). High interactivity among the elements refers to a high intrinsic cognitive load and low interactivity refers to the low intrinsic load. Think of a new vocabulary word you have just faced with. You will just relate it to its meaning in your language and transfer it to the LTM. The mental effort devoted for this activity will be low. On the other hand, think of a Maths equation you are dealing with (Sweller, 1998). There will be several variables interacting with each other and should be processed simultaneously in the mind. Such a situation will cause a high intrinsic load in the WM. Extrinsic cognitive load is not necessary for learning (van Merriënboër and Sweller, 2005), and is caused by the presentation format of the instructional material to the learner (Paas et.al, 2003). If information is not presented in line with the human cognitive architecture, it will cause an unnecessary extraneous load which will interfere with learning. Although organized information or in other words schemata are stored in LTM, first they are processed in WM. The germane load is the devotion of cognitive resources to schema acquisition and automation (Moreno and Park, 2011). While extrinsic load should be kept as minimum as possible, germane cognitive load should be kept high but within the limits of the WM for a better schemata construction and automation.

The announcement of CLT, has also raised an interest to measure the cognitive load. The methods used in measuring cognitive load are grouped as subjective and objective measures (Brünken, Plass and Leutner, 2003). In subjective methods, after being exposed to the learning material, learners are asked to rate their mental effort while learning with the material. Participants fill a 9 item Likert scale to report their cognitive loads from “Very High” to “Very Low”(Paas, Tuovinen, Tabbers & van Gerven, 1994). On the other hand, several objective indicators of cognitive load were proposed in the literature (Brünken, Seufert and Paas, 2003).

Measuring learning outcomes as indicators of cognitive load have been popular in in multimedia studies. Many experiments mentioned in Mayer (2001) and Mayer (2009) are ends with transfer and retention tests which assess the learning outcomes of different multimedia interventions. The biggest objection to the use of a tests in measuring cognitive load is we cannot be sure whether the difference in learning outcomes of control and experiment group was a result of different levels of cognitive load. Another indicator of cognitive load is time invested on the learning material (Brünken et.al, 2003). According to this approach if cognitive load of a material is high, learners will spend more time to comprehend it and vice a versa.

2. Research rationale

There is a vast amount of studies in the literature which examine the use of multimedia features in learning environments. However there is a big gap in the literature to understand the role of multimedia in evaluation process, especially in test items (Saß, Witter, Senkbeil and Köller, 2012). In the current study, our aim was to compare two different multimedia which uses same WM resources in a testing environment: Static graphics plus text and animated graphics plus text formats. Our main intention to compare static graphics and animations was to see whether there is any difference between these two interventions in terms of response time and response accuracy. Since both interventions use same verbal and visual channels, we assume there will be no difference in response accuracy among two groups. However we also assume using animations in presenting questions will cause redundancy and animation group's response time will be higher than the static graphics group.

3. Methodology

An English achievement test was developed for Turkish pupils who learn English as a second language. Test contained 12 multiple choice questions. 116 8th Grade pupils from three different government primary schools in Eskisehir city participated in the study but 4 students could not finish the test due to technical problems. Participants' ages differed between 13 and 14. Pupils were randomly assigned to static graphics plus text group (N=58) and animated graphics plus text group (N=54). The last frame of the animations were given as question item to the static graphics plus text group to provide consistency in both groups. English test was delivered to the pupils in a web based environment where questions were presented in a random manner to avoid cheating.



Fig. 1. An example of question items presented in achievement tests

The test was applied in computer rooms of schools. Students attended computer rooms in groups consisted of 8-12 individuals. While one group was taking the test in computer room, the other group stayed in the classroom with their teachers and followed regular schedule in the school. Students' responses to each questions were recorded separately in millisecond units by the web based environment.

4. Findings and discussion

The Cronbach alfa was calculated to estimate the reliability of the test and found to be ,71. It can be inferred from the Cronbach alfa score that the test is a reliable tool to measure students' achievements. An independent samples t-Test was conducted to examine the difference between response accuracy of static graphics group and the animated graphics group (Table 1). Although animation group scores were higher, no statistically significant difference was observed in terms of response accuracy between statics group and the animation group.

Table 1. Response Accuracy of Static Graphics and the Animated Graphics Group

	n	X	SD	t	df	p
Static graphics	54	5,30	2,879	-1,689	110	.0,94
Animated graphics	58	6,19	2,717			

With the aim of addressing our second research question, an independent samples t-Test was conducted to compare the response times of static graphics group and the animated graphics group. Results show that total response time (in milliseconds) in animation group (N=58, M=273714, SD=87167) was higher than the static graphics group (N=54, M=223356, SD=65384), ($t(110) = -3,439, p=001$). Results for each question item are also displayed in Table 2.

Table 2. Comparison of Static Graphics Plus Text Group and Animated Graphics Plus Text Group

Group	N	Mean	SD	t Test
Item 1				
Static	54	18819	9673	t=-2,521 df=110, p=,013
Animated	58	23702	10752	
Item 2				
Static	54	17336	7134	t=-3,469 df=110, p=,001
Animated	58	23336	10684	
Item 3				
Static	54	18131	10487	t=-,693 df=110, p=,490
Animated	58	19480	10108	
Item 4				
Static	54	18263	9301	t=-2,229

Item 5	Animated	58	22062	8741	df=110, p=,028
	Static	54	24042	12011	t=-2,926 df=110, p=,004
Item 6	Animated	58	30858	12599	
	Static	54	20741	11551	t=-0,30 df=110, p=,976
Item 7	Animated	57	20953	50670	
	Static	54	18739	9340	t=-4,293 df=110, p=,000
Item 8	Animated	58	27306	11564	
	Static	54	18133	9791	t=-1,949 df=110, p=,054
Item 9	Animated	58	21410	7962	
	Static	54	20245	10275	t=-1,459 df=110, p=,148
Item 10	Animated	58	23141	10704	
	Static	54	15894	8550	t=-1,746 df=110, p=,084
Item 11	Animated	58	19499	12723	
	Static	54	16612	9161	t=-1,247 df=110, p=,215
Item 12	Animated	58	19036	11212	
	Static	54	16400	11416	t=-2,957 df=110, p=,004
	Animated	58	22931	11919	
	Static	54	16400	11416	

The findings support our hypothesis that there will be no difference in response accuracy among the groups. There are four types of graphics defined in the literature. Decorative, representative, organizational, interpretive and transformational graphics (Carney and Levin, 2002). The graphics used in our study are representational since they depict the context of the scene in test items and assist students to comprehend the situation presented

in the question. The contexts depicted by both animated and static graphics groups are same. Therefore our research results assert that animating representative graphics without improving the context has no significant advantage to displaying them in static graphics format in terms of response accuracy.

Findings also support our second hypothesis that response time will be higher for the animated graphics group. According to the CLT, it can be assumed that if performance outcomes (response accuracy) are same for the two groups, then the cognitive load caused by graphics and the animated graphics would be same (Brünken et al, 2011). However measurements of time on task (response time) does not support this assumption. Animation group spent more time on answering questions than the static graphics group which implies that cognitive load was higher for the animation group.

The incongruity between two indicators of cognitive load might be explained by Paivio (1986)'s dual coding theory and redundancy principle (Mayer, 2009). The dual coding theory proposes that incoming information is processed in different channels in the WM according to its modality. Speech is processed in verbal channel and texts and graphics are processed in visual channel. In our study both statics graphics and animated graphics were processed in visual channels. There was no superiority in terms of presenting the information to the students in animated format or in static graphics format. However in animation group students were exposed to more bits of information to be processed in WM than the static graphics group due to moving graphics. This situation might be the main reason of higher response time in answering questions. The similarity of response accuracies in both groups postulates that animating graphics would have caused a redundancy effect. Redundancy refers to "eliminating any redundant material results in better performance than when the redundant material is included" (Kalyuga, Chandler & Sweller, 1998). With reference to the broad definition of redundancy effect, it can be inferred that animating graphics was redundant, therefore produced higher cognitive load and resulted higher response time for the animation group. However cognitive load caused by animating graphics did not exceed the capacity of WM and did not hinder the response accuracy of the animation group. Although not significant, animation group even outperformed the static graphics group.

The results might also suggest that animations can generate germane cognitive load on individuals which results in increased learning outcomes and also more time on processing information in WM. However, these findings should be dealt with caution because the issue of cognitive load is quite complicated and controversial. Further studies should be initiated to determine the role of animations in cognitive load generation and in learning outcomes.

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4th International Conference on New Horizons in Education

Natural User Interfaces to Teach Math on Higher Education

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Abstract

A common and known problem among students on higher education (in general throughout the scholar life) is the difficulty of learning math. Nowadays the teaching methods for learning math remain relatively the same. Though, with the emerging of new technologies like portable devices (smart phones and tablets) and movement interaction devices (Nintendo WiiMote, Microsoft Kinect and PlayStation Move), learners and teachers have big interest on new ways of interacting through the teaching-learning process. In this sense the Natural User Interactions (NUIs) offer a great potential to facilitate new ways of computer enhanced learning, these have the potential to enhance classroom interactions, by increasing learners participation, facilitating the teachers' presentations and creating opportunities for discussion. We present a system that combines gestural and touch interactions to support teaching math across multiple personal devices and public displays to enhance and support math education for college students. In a formative usability study, learners and teachers were positive about the interaction design and the learning possibilities for math education. Thus, this created good intentions in the users of continuing using it.

Keywords: Learning Technnology; Math Education, Natural User Interfaces, Human Computer Interaction.

1. Introduction

Since education is closely linked to the creation of information and communication of knowledge, it is not surprising that the Information and Communication Technology (ICT) present great opportunities in education.

Because of its huge penetration, the first idea that comes to mind when thinking about ICT is perhaps the personal computer in which the interaction occurs through devices such as the mouse, keyboard and screen.

Taking advantage of the advances that have been made in the development of interfaces tangible, gestural, auditory and the release of programming tools for the Kinect sensor and some additional libraries can facilitate the incorporation of the Natural User Interfaces (NUI) to support teaching tools, to facilitate and expedite its use by teachers and students, we can define NUI as those that allow users to interact with systems in the same way they interact with the real world (Widgor, 2011).

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By nature of mathematics have an area of significant opportunity for NUI.

This paper presents the development of a prototype, and its evaluation to support the teaching of mathematics for engineering that allows the use of natural user interfaces under the scheme of user-centered design.

2. Background

The 2011 Horizon Report mentions that are 6 technologies to be used in universities for teaching, learning, research and creative expression. Among them, gesture based computing with an estimate time of adoption of 4-5 years.

3. Methodology

3.1. 3.1 Context of use

The context of use is determined as a result of a process of direct observation and interviewing those who could be potential users of the application: mathematics teachers working with groups of different levels.

3.2. 3.2 Design

The design comes from the need felt by teachers, who for several years have taught and have experienced benefits and limitations of various tools used in the classroom. They suggest some points according to their experience (see Fig. 1).

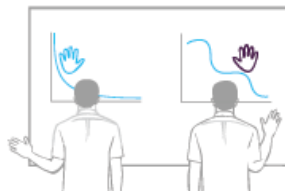


Fig. 1. Proposed interaction.

3.3. 3.3 Prototype

In the first prototype raises two different scenarios: the first one covers the topic of functions, their identification and graphing, the second one covers algebra topics.

3.4. 3.4 Evaluation

Once finished the first prototype, we proceeded to perform a preliminary evaluation which focused on the ease of use of the application and its user experience.

4. Preliminary evaluation

A first prototype was created to test the reaction of students when a system with natural interaction is presented to him, the way he might interact with it and see if it generates any interest in the user, we called this prototype MathNUI see it at Fig. 2.

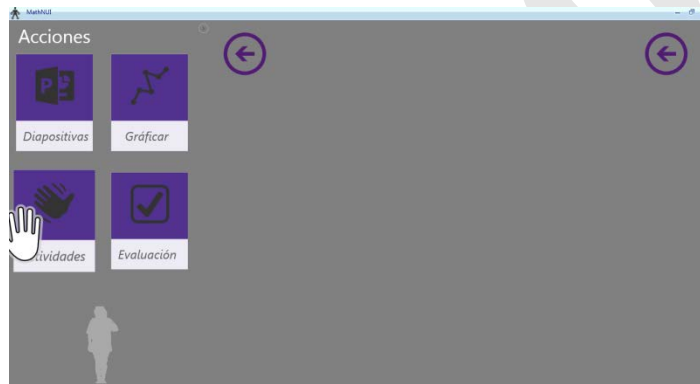


Fig. 2. First prototype: MathNUI.

4.1. 4.1 Testing the first prototype

The potential advantages of natural user interaction cannot be perceived until they are situated in an interaction context.

Preliminary evaluations are an ideal mechanism to go beyond current practices and allow us to get involved in the design process and visualize new schemes of application in a simple and economic way (Santana, 2005).

To explore the feasibility of the conceptual design, a preliminary evaluation was conducted, testing the scenario of use and the prototype with three students from the School of Telematics of the University of Colima (see Fig. 3). These evaluations were video recorded and photographed. The Technology Acceptance Model (TAM) was used. Developed by (Davis, 1989) and the System Usability Scale (SUS) for measuring usability (Brooke, 1996). 25% of the students were men and 75% women.

100% are Software Engineering students, 66.6% of them said that they have not used system with natural interaction.



Fig. 3. Preliminary evaluation.

5. Results

5.1. 5.1 TAM

The purpose of TAM is to explain the causes of the acceptance of the technology by the users. Proposes that perceptions of usefulness and ease of use by an individual in an information system are conclusive in determining their intention to use the system.

For the perception of ease of use, 80% believe that the system is easy to use, 60% agree it is easy to learn, while 40% strongly agree and 60% agree that is clear and understandable, and finally by 100% believe (agree and strongly agree) that is easy to find information on it (see Fig. 4).

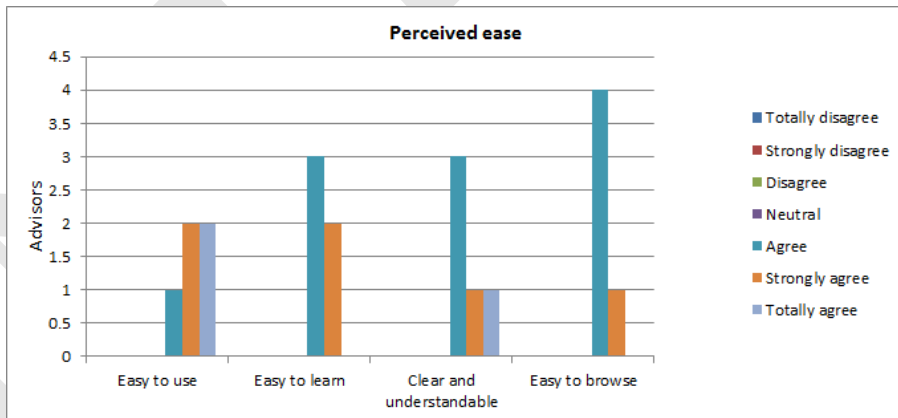


Fig. 4. Results about the perception of the easy to use of the platform.

In the area of the utility perception, of the responders, 60% believe that the system is efficient, 40% said it improved their performance, while 80% said it improved their productivity, and 80% believe that was useful (see Fig. 5).

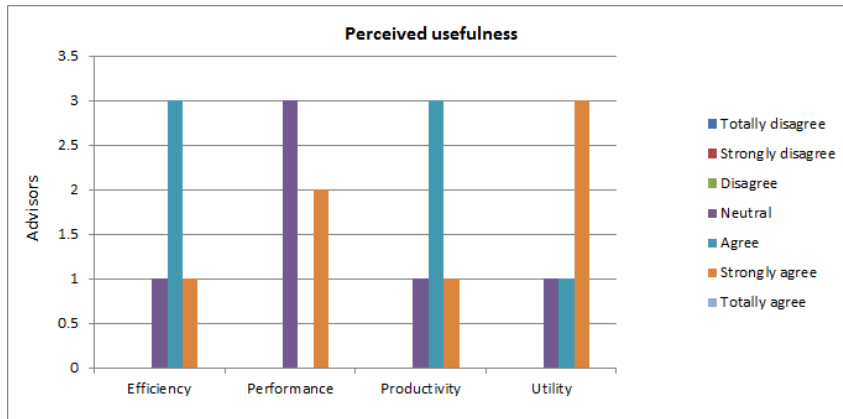


Fig. 5. Results about the perception of the utility of the platform.

Regarding the attitude towards the use, a positive response was obtained for the system: 80% agree that it seems a good idea it software (see Figure 6).

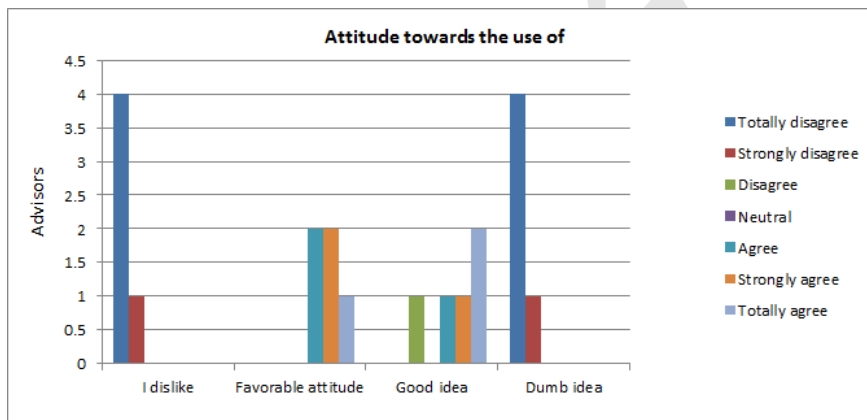


Fig. 6. Results about the attitude toward the use of the platform.

Finally the answer on the intended use, 80% of the users said they would use the system in their courses, use it again and have the intention of use it (see Figure 7).

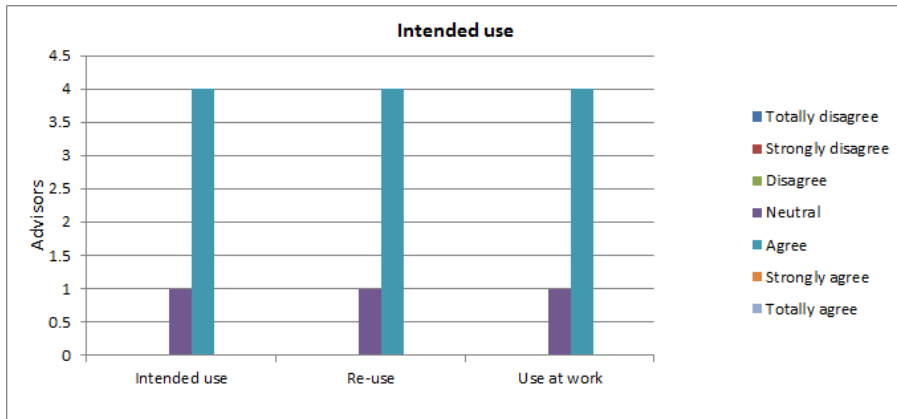


Fig. 7. Results about the intention of use of the platform.

5.2. 5.1 SUS

The SUS is a simple, ten-item scale giving a global view of subjective assessments of usability, has proved to be a robust and reliable evaluation and correlates well with the usability metrics.

The results exposed a frequency of the distribution of SUS scores showed in Fig. 8 from which we can infer that the platform evaluated, at least in the System Usability Scale is going in the right way because 100% of the participants consider their needs satisfied with this platform: between 61 and 100 points of satisfaction.

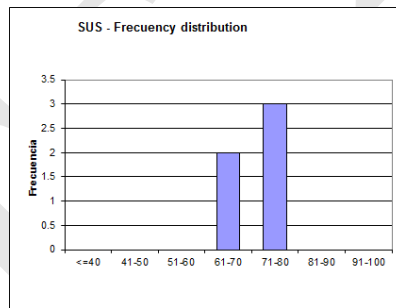


Fig. 8. SUS distribution.

6. Conclusions

This work presents the creation of a NUI math learning system called MathNUI at the University of Colima, for learning mathematical concepts through the use of natural user interactions.

The evaluation of this platform gave as a result that the platform is useful and allows a greater performance and efficiency, and it is also considered a good idea. Thus, this created good intentions in the students of using it again.

As a general conclusion we can say that the use of natural user interfaces to develop math applications for education is adequate.

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Fourth International Conference on New Horizons in Education

Necessity of a dictionary of contemporary art in theory and practice concerning art education

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Abstract

Technological and scientific developments affecting all disciplines have been infinitely effective in both theoretical studies and application approaches especially among all fields of social sciences beginning from the second half of the 20th century. Reflections of postmodernism, considered as mentality of the era, on educational institutions of social sciences were mentioned as a paradoxical complexity similar to its theoretical applications. Differences in approaches regarding applications by modern and anti-modern viewpoints in education cause an increase in studies focused on theory. In this sense, being places where connection of postmodernism with the art is excessively occurred, higher art education institutions are in interaction with both modern and postmodern structures such as theoretical knowledge acquisition, acquisition of artistic skills based on intellectual foundations and reflecting acquisitions on educational status. For instance, contemporary art courses dealing with today's art with dominance of art historical progress, is important on the one hand in creating application through theoretical foundations and in terms of perceiving how sociological constitutions of periods affect the art; on the other hand in the analysis of similar applications and reflecting theoretical acquisitions on works in studio courses. There are several classes and subject fields supporting each other contents in programs of educational institution of undergraduate level. The purpose of this study is to piece together content similar to a dictionary that may help effective understanding theoretically of the structure of contemporary art related to disciplines such as visual art, linguistics, semiology, sociology and psychology. In this study, which employs qualitative research methods, considering the extent of the scope the study, participants are chosen among instructors of graduate education in the field of art education. Information gathered from the studies of undergraduate instructors is processed using document analysis and data acquisition methods, and finally analysed via concept analysis. Concluding with final commentary on the issue, the research suggests the necessity of such a comprehensive structure, namely a dictionary of contemporary art, for students and instructors of higher education.

Keywords: education; art; contemporary; postmodern; dictionary

1. Introduction

Postmodernism is thought to begin with the end of modernism, namely era of manifestations, a period that started with art impressionism and meant continuous progress in science after the age of enlightenment. It is an understanding and expression method based on the criticism against paradoxes of modernism such as progressive viewpoints, rationalism and being scientific. Within the postmodern art both adopter and critic of modern thinking, theory of gathering from past and combining with the present is applied quite effectively. With the art

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losing its functionality as a discipline and wrapping up in interdisciplinary function, we may talk about the same context for all fields with horizontal relation in terms of perception of artistic studies and their socialization. Beginning from the second half of the 20th century, technological and scientific developments effecting all disciplines vertically and horizontally have been infinitely effective in both theoretical studies and application approaches especially among all fields of social sciences. As a way of thought and expression of the era, it is possible to speak of postmodernism as a paradoxical complexity stemming from the differences in treatment of artistic applications by modern and anti-modern views within the context of reflections on educational status as a social sciences field. This paradoxical situation causes increase in effort for developing theories on the relationship between art and education. In this sense, being places where connection of postmodernism with the art is excessively occurred, higher education institutions of art education are in interaction with both modern and postmodern structures such as theoretical knowledge acquisition, acquisition of artistic skills based on intellectual foundations and reflecting acquisitions on educational status. For instance, modern art class that deals with today's art with dominance of art historical progress, is important on the one hand in creating application through theoretical foundations and in terms of perceiving how sociological constitutions of periods affect the art, on the other hand in the analysis of similar applications and reflecting theoretical acquisitions on works in studio courses. For this reason, we can say that postmodernism has extensions in both theory and application.

Another vital issue at the point of reflection of postmodernism on education status is the studies that combine cultures with common experiences in a structure. At this point, postmodern expression shows parallelism with subjects of pluralism and liberation of individual that are based on 'culture' fact. Becoming prominent with the devastation of social culture concept, the notion of cultural socialisation (Akay, 2010) has become a frequently encountered situation in fields of art and education along with sociology. Cultures as separate values and as the most important element forming societies come closer during education process. As a result of individuals' understanding of multiculturalism with their distinct cultures and association of these values in educational applications in pluralistic way, we can come across with effects of multiculturalism in exhibitions and works.

Together with proliferation of this new way of thinking and perception condition, there arises necessity to define new aesthetic perceptions in terms of perception of art. This means disclaiming current aesthetic understandings, just like experienced during Renaissance period in proliferation and approval of new aesthetic understanding with elements of perspective through denying the limits of iconographic and ideological viewpoints of Middle Ages. Aesthetic understandings of reflective theory popularised with the Renaissance left their place to relationality and positionality with the coming of modernism enabling present postmodern works to have formalist aesthetics and then rich variety in terms of material and formation. At this point, as a result of ontological shift that separated from superficial and imaginative fictions and that urged for a perception of location, eclectic assemblies occurred in objects used in emplacements in addition to superficial and fictive eclecticism. Along with this ontological change in the structure of art object, we need to speak of new aesthetic paradigms in perception of the object and changing definition of artist. Artist has now become a person who is questioning the nature of art just like a philosopher and this thinking reminds of Hegel's thesis end of art. In this respect, Hegel inserted "art invites us to intellectual thinking; reason for this is not to create a new work of art but to know in philosophical sense what art is" (Quoted from Hegel: Danto, 2010, p.37).

Considering these changes from the point of criticism of art, works of postmodernism are though not to be explained with words such as reminding and questioning. Even there is a difference between times of creation and final product of an artistic work; it seems natural that certain differences among personal perceptions may arise. As can be understood from here, meaning is continuously postponed and never absolute and unique. Explaining this situation within the relation between language, art and postmodernism, Derrida explained all these differences with the concept of 'difference in interpretation' and '*differance*' (Şaylan, 2002). Conveying all changes in art to individuals through art education plays an important role in the interpretation of contemporary art.

1.1. Problem Status

Included in programs of departments of faculty of educational sciences training art teachers on bachelor's degree and with their contents in parallel with contemporary art, current contemporary art classes and theoretical courses have objectives of comprehending various paradigms of today's art. As a result of technological, sociological and cultural events of last fifty years of the 20th century effecting art infinitely, the art has gained a complex state. This complex structure urges the usage of educational applications gathering several disciplines in class contents and education methods. Because of direct or indirect joining of visual elements of many disciplines into education environments through art, students have difficulty in making sense of concepts belonging to different disciplines, in connecting them with art and in using those concepts among several dimensions such as artistic applications and criticism. These students experience trouble in conveying these non-current and inadequate information. For instance, recently it is possible to come across with anti-modernist language in many artworks biennials and one should have a sociologically critical point of view in better perception of this particular language.

Dictionaries are one of the most important educational materials necessary for creating educational conditions and reconfiguring this information with a social and cognitive understanding. In this context, scanning the related literature, while there exist publications consisting of information about classical and modern periods, technical terms and lives of artists, we have not come across with not any dictionary type publications consisting of information related to postmodern period, certain concepts and lives of artists and also consisting of interdisciplinary terms. For the students who are trying to familiarize with and experience the artworks and artists of current period with the help of course contents, there is an increasing necessity for a dictionary in which they can make sense of concepts related to different disciplines.

1.2. Dictionary as an educational material

In terms of constructivism, material designs and education technologies, aimed at reconfiguration of information gather from education environments and outside, were constructed in accordance with a certain book, educational level and location. According to this understanding, learning is "reconfiguration of past understandings of an individual into a more complex and more valid state and internalisation of acquired learnings with various symbols, images, graphics or models" (Sakalli, 2011, p.49). For this reason, students experience problems in interpretation of several concepts when they combine the reflection of social culture into classes and their cognitive experiences. In the face of these problems, constructivist teacher is in the position of directive and guidance counsellor, urging students to question through questions but does not tell what and how to think. In this case, gaining characteristic of an active researcher, the student feel the necessity for materials that show connections with other disciplines for different approaches and that supports making sense of these concepts. While concentrating on reading for ensuring better learning seems a way of first priority, after reading, it is necessary to conduct activities such as using this knowledge in sentences and real life in practice. Considering the main objective of activities based on reading as understanding the message, at this point the importance of extent of vocabulary emerges. Yılmaz and Koçmar (2009) suggest that "vocabulary is the primary effect on success of a student in understanding what s/he reads", and point out that habit of reading dictionary is one of the various ways of increasing this comprehension. Dictionaries can either comprise of word assets including all words or comprise of all words related to a particular information field (Quoted from Sayal: Yılmaz and Koçmar, 2003). For this reason, they can be utilized as an education material in achieving certain objectives in training.

Dictionary is "a work of art in various qualities and scope that compiles and defines word assets or a certain part of word assets in a language in accordance with an objectives, that exemplifies on the basis of written texts and that sometimes includes grammar explanations" (Kaya, 2007).

When dictionary preparation process is considered in terms of certain discipline and its theoretical and practical paradigms are determined, all the rest subheadings will be integrated with the concept of lexicography. Dictionary preparation purposes are divided into three; training-education oriented, multilingual and scientific-technical dictionaries. In this study, social objectives of lexicography are adopted and a necessity for a dictionary of educational and training purposes is proposed. (Quoted from Мартынюк: Usta 2010, p.97) In forming the education status, dictionary of contemporary art;

- Since it was prepared oriented to a certain context, as a material it provides students with wide point of view in real life usage.
- It should provide students of art education opportunity to comprehend situations they may come across with instances outside the class and in real world and to react actively. Since dictionaries are prepared directed towards educational fields, its priority in adoption to real life should come to forefront and accepted as an objective.
- It should assist students and preservice teachers in having a sense of adequacy and self-confidence with the help of interdisciplinary comprehension style rather than temporary knowledge acquisition.
- It may ease training process and enrich the content with visuals and different connections for words that are difficult to comprehend, and keep enthusiasm of students of art education.
- One of the objectives of dictionary preparation should be its quality as an assistant for students and the society to learn Turkish language better and correctly use it throughout their lives.
- It should support to expand their vocabulary and their art criticism abilities with the words and definition it contains.
- Referring to basic sources, it should teach students where to find required information and resource access in their researches.

In this sense, since materials are not prepared directed towards a target group or a student group, they cannot serve the purpose. Including definitions of art concepts and terms and having characteristic of a primary source as a separate discipline, current dictionaries are class and out of class materials prepared oriented towards supplying students with comprehensive information regarding a certain theoretical and practical field. Dictionaries that aim at explaining word assets of a field and their connections with other fields are called thematic dictionaries. According to Actual Turkish Dictionary of TLA (Turkish Language Association) (2013), theme means major subject, basic motif and staple topic. According to science and art dictionary of TLA (2013), main idea bears the meaning of saturation or unsaturation provided by interaction between a certain pulse and requirement. Related to training, a syllabus means a thought or a recurring subject adopted in terms of an education unit and an educational activity.

Aksan divides dictionary types into two as per their status whether it is based on alphabetical order or not, and they are called alphabetical dictionaries and concept (concept field) dictionaries (Quoted from Aksan: Mutlu 2009, p.816). From the statements of Mutlu, it can be understood that he suggests a methodological unity for thematic dictionaries in a similar alphabetical order like regular dictionaries have. According to Mutlu, "in thematic dictionaries, basic subject and staple topics (headings) should be determined and words should be organised in lexical and listed entries" (2009, p.817). For instance, while basic headlines for the theme, Turkish, are society, science and technology, universe, art, language and literature, abstract terms and things, subheading for this theme is Art: cinema, archaeology, drawing, sculpture and architecture. In this sense, analysing the related art dictionaries, they may be regarded as prepared in a thematic and alphabetical way, however this theme

in question transforms into actual, close to real life and interdisciplinary structure when it comes to contemporary art. It is known that there are many subheadings (of related disciplines) supporting this theme. Some of the subheadings are: linguistics, semeiology, sociology, psychology, philosophy, art history, criticism, psychoanalysis, architecture, public space, technology, museology, aesthetics and artistic application. Since art comes closer to life with postmodernism and continuously in relation with various disciplines, several concepts are added to its word assets. Some of the them are: deferred action, non-centrality, deterritorialisation, deconstruction, simulation, simulacra, appropriation art, parallax, relational aesthetics, meta-instrument, sous-sature, paralogy, metaphor, rhetoric, praxis, axiom, metalanguage, genealogy, society of the spectacle, the law of displacement, artistic aura, reciprocal action, the artist-author, space-time, random materialism, eclecticism, code, codelessness, actionist, installation, video installation, curator, memory, postmodernism, pastiche, parody, uncanny, majority, spatial aesthetics , artefact, text, intertextuality, context, postepistemologic, vulgarized, popularized, supreme, hyper-realism, assemblage, archetype, anthropometric, manifesto, sub-culture, high culture, ready-object, cold art, process art, in situ, happening, conceptualism, serial principle, decollage, famage, material action, making reference, situationism, body art, metaphorical, the art of information, specific object, reductive aesthetic, cultural object, environment, collective memory, to marginalize, multi-cultural, identity oriented art, ironic approach, images of popular culture, graffiti, neo-imagism, the indicator manipulator, social sculpture, decadence, an object of consumption, chromatic, monitor, hybridization, pickup object, rhetoric, not to culture, banality, anthology, catastrophe, fetishism, plain meaning, connotation, synthetic proposition, internalisation, the other, marginalisation, eddy, the neo-geometry... Because of such a discipline variety, it is necessary to apply for primary source and refer to main sources in order to enhance the quality of such an art dictionary with an abundance of concepts. While writing the definitions and explanations of words in thematic dictionaries, it is necessary to benefit from various sources by means of extensive literature review. Literature review, while explaining literary terms, should help readers in understanding depths of terms and in comprehending thanks to several viewpoints of concepts.

1.3. Objective of the research

Aim of this study is find answers to following questions regarding preparation of consitutional structure similar to a thematic dictionary as an education material that may help effective comprehension of the structure of today's art in accordance with its relation with branches of science such as visual art, linguistics, semeiology, sociology and psychology:

- For which reasons is there a necessity for a thematic dictionary that can combine concepts from various disciplines?
- What should this particular dictionary of contemporary art contain different from other art dictionaries?

1.4. Importance of research

Scanning the related literature, there are several dictionaries published in Turkish within the area of art. Through analysing contents of these dictionaries, it can be inserted that these dictionaries contain terms and concepts about various different artistic applications ranging from Mesopotamia art to Fluxus. These comprehensive publications bringing explanations to several understandings, application method, technical materials and terms belonging to history of art meet an important deficit for individuals interested in art. Along with these studies including archaic, traditional, modern and postmodern periods and as a main source for researchers in an inquiry, there are not any dictionaries of contemporary art that contain information and concepts oriented towards providing theory and application unity about today's art. In a survey including visual arts course teacher candidates attending art education on bachelor's degree, Çoşkun Onan (2011) indicated that students

experience difficulties in comprehending certain basic concepts used in contemporary art and criticism of art lessons such as minimalism, pop art, curator, postmodernism, fluxus, manifesto, performance, installation, video installation, post, new art objects, kitsch and conceptual art (Coşkun Onan, 2011, s.15).

Because of field reviews, there have not found any publications with contents based of relationship between modern art and other various fields such as linguistics, sociology, psychoanalysis or urban and regional planning. Compiling of Dictionary of Contemporary Art in such a thematic structure and in an alphabetical form is considered to become a assistant source for visual arts preservice teachers and active teachers, instructors in faculty of educational sciences, students of faculty of fine arts and instructors, also all individuals interested in art.

2. Method

Research was conducted based on qualitative research methods. In qualitative researches based on explanatory tradition, main concern is to analyse limited phenomenon and facts in a most possible depth and descriptiveness. In this research, reason of using qualitative methods is to pioneer the hypothesis applications by thoroughly investigating dimensions related to a current theory. Results obtained from this study are expected to provide depth, detail and meaning to qualitative data. In this sense, a researcher analysing a certain situation with a limited number of participants and creating analytical generalization from acquired results may start to develop a theoretical model or to form a theory (Yıldırım and Şimşek, 2008, p.310).

6.1. 2.1. Research Pattern

This research is conducted fully with qualitative research methods and data are patterned through analytical research. In accordance with analytical method, two distinct data sets of the research (instructor writings and literature data) were analysed with document analysis-data collection technique. Among research methods, there are also other studies conducted without these two qualitative or quantitative classifications. These are analytical (analyser) studies. "Analytical study is a research type that investigates facts, thoughts, concepts or structures with the help of documents, records, voice records or other media" (Mc. Millan, 2004, p.12).

6.2. 2.2. Sample

In the research, three different samples were used. Firstly, eight people from different universities were chosen among instructors who serve in different theoretical and practical courses in Fine Arts Education departments and who combine qualities of educator-researcher and artist all together. Reason for creating a sample based on maximum variety is not to generalize but to find out any common or shared facts among these ranging situations and depending on this variety to put forward different dimensions of these facts (Yıldırım and Şimşek, 2008, s.108). Second sample was form out of 10 sources chosen from theoretical and applied literature of contemporary art with a basis of maximum variety. As a third sample, three art dictionaries published in Turkey were analysed in order to determine the count and ratio of determined concepts. These sources are given in sources section.

6.3. 2.3. Data collection method

As a main data collection method of the study, document analysis method was used. *Document analysis*: It is used in qualitative researches when direct observation and discussion are not possible. It includes analysis of other visual materials such as written material and film, video, photograph regarding required fact or facts. Which materials are of importance depends on the main problems of research (Yıldırım and Şimşek, 2008). In this study,

three types of document were analysed with document analysis data collection method. These are art dictionaries, books from different disciplines forming the literature of contemporary art and writings of instructors.

- *Art Dictionaries:* Adnan Turani's Dictionary of Art Terms (With the code A), Nimet Keser's Art Dictionary (With the code N), Metin Sözen and Uğur Tanyeli's Dictionary of Art Concept and Terms (With the code U).
- *Writings of instructors:* Instructors are asked to fill a form consisting three open ended question such as "About which concepts of contemporary art do you experience difficulty in teaching?".
- *Literature about disciplines related to contemporary art theory:* Art criticism, art, philosophy, art history, types of artistic practice, criticism, sociology, psychology, aesthetics, public space are chosen temporarily in this phase of the research. These fields may be increased in number during preparation and application of dictionary of contemporary art. Determined sources are given in Sources sections of the study.

6.4. 2.4. Data analysis process

In the research, dictionary indexing technique of lexical unit (m) was chosen arbitrarily as a data analysis unit. Analysis of data was conducted with two basic processes. First process is to find out which concepts include (m) lexical unit in contemporary art theory literature, dictionaries and writings of instructors. Second process is to compare the findings with a table and interpret them. Concepts bearing (m) lexical units are given below. Among these concepts, related concepts that will be possibly included in a dictionary of contemporary art are emphasized by underlining. The sample group of terms chosen from dictionaries are given according to alphabetical lexical listing from Turkish dictionaries without translations; main reason for such choice is to interpret statistical data for (m) lexical units in numbers from those dictionaries.

In A dictionary: (chosen from M units in Turkish) mabet, mabeyn, macun, maça, maço, madalya, madalyon, maden mavisi, Madonna, Magdalanien Sanatı, Mağara Devri Sanatı, mağara tapınağı, mahçe, mahfil, mahmuz, mahya, mahya aşığı, mahya kiremidi, mahya örtüsü, mahzen mezar, majolika, makas, maksüre, malakari, malikhane, manastır, manastır tonozu, maniyere, maniyerizm, mansard, manzara resmi, markiz, Mars, mask, maske, mastaba, mastar, mastar çekmek, matraka, Moussoleion, Mavi Atlı Grubu, mavi çini, mazgal, mazgal dişi, mazgal siperi, meandr, Medüz/Medüza, megalit mezarları, megaron, menhir, menora, merkezsel yapı, mertek, mescit, metop, mezar hücresi, Mezolitik, mih, Mısır dor düzeni, mihenk, mehenk ya da mihenk taşı, mihrap, mimarlık, minare, minber, mine, Minerva, minimal sanat, minyatür, mit, mitoloji, mizbah, mobil, mobilya, modelaj, modern, modernizm, modle etme, modülasyon, moloz döşek, moloz duvar, moloz taşı, monografi, monogram, monokrom, monolit, monopil, monopter, monotipi, monumental, motif, mozaik, mozaik sıva, mucarta, Mudekhar üslubu, muhakkak, mukarnas, mulaj, mum heykel, mumlu boya, mumlu kil, Müdejar üslubu, mühür oyma, müz, müze, müzehhip.

In N dictionary: (chosen from M units in Turkish) macenta, Madonna, maesta, mağara resimleri, mail art, majik gerçeklik, maket, mandala, manifesto, maniyere olmak, maniyerizm, Marksist estetik, maruflaj, massürrealizm, matriks, Mavi Atlı Grubu, Mac art, mecaz, medium, mekan, mekanik sanatlar, merdane, metafizik sanat, metaphor, metal uç, metamorfoz, metanimi, mezopotamya sanatı, mezotint, mısır sanatı, mimesis, mine, minimalizm, minyatür, mit, mitoloji, mobil heykel, model, modelaj, modernist sanat, modle etme, modülasyon, modülasyon kadanse, mono baskı, monogram, monokrom, monokromatik, monotip baskı, monoton akromatik renk, monoton kromatik, montaj, motif, mozaik, mulaj, multimedia, mum, mum yok etme tekniği, mural, mürekkep, Müstakil Ressamlar ve Heykeltraşlar Birliği, müze.

In U dictionary: (chosen from M units in Turkish) mabet, mabeyn, mablak, macellum, macun, macun tekniği, maça, maço, madalya, madalyon, madırğa/matraka, Madonna, maesta, mafraş, mafsal, magribi, mağ, mağara resmi, mağaza, mahalle, mahçe, mahfil, mahmuz, mahrama/makrama, mahya, mahya kiremidi, mahya kirişi, mahzen, mahzenmezar, mail, majestas domini, majik gerçekçilik, majolica, makam-I ali, makas, makas kirişi,

makat, maket, makılı, makina estetiği, makrama, maksem, maksure, makta, mala, malakar, malakari, malta bıçkısı, malta taşı, maltız, manastır, manastır tonozu, manazır, mandala, mandapa, mandorla, mangal, maniera greca, maniera tedesca, manifesto, manken, mansard çatısı, mansiyon, mantarağacı, mantar döşeme, maneline, maniyerist sanat, manyerizm, manzara bahçesi, manzume, maristan, marketöri, markiz, marley, maroken, Mar grubu, marsilya kiremidi, martyria, martyrium, masa, masgala, masif, mask, maskala, maskaron, maske, maslak, mastaba, mastar, mastos, maşallah, maşraka, mat, matbah, matrab, matraka, maun, mavi-beyaz çini, Maya sanatı, mazgal, meandr, medici vazosu, medine, medrese, medium, mefruşat, megalit, megalitik, megalopolis, megaron, megastrüktür, mekan, mektep, menazır, meneviş, mengene, menhir, mensa, menteşe, menzilhane, menzil taşı, merdiven, merdiven boşluğu, merdiven kovası, meremmetçi, meridyen koltuk, merkezi plan, merkezi yapı, mermer, mermer sıva, mertebani, mertek, merz, mescid-i cuma, mescit, mesire, mesken, mesmet, meşe, meşk, meşk kağıdı, meta, metafizik resim, metop, metraj, metris, metro, metropol, metropoliten, mevlevihane, meydan, meydanlık, meydan odası, mezar, mezarlık, mezar taşı, Mezopotamya sanatı, Mısır sanatı, miskala, miğferli aryballos, miħda, miħenk taşı, miħrabiye, miħrap, miħrap duvarı, miħraplı, miħrap-önü kubbesi, Miken sanatı, mikleb, miktal, milli mimari, mimar, mimar çapı, mimar-i sani, mimari, mimariye, mimarlar odası, mimarlık, min, minai teknik, minare, minber, minder, mine, mineli, minemsi teknik, minimal sanat, minkar, minos sanatı, mişar, minyatür, minyatürcü, mirkat, miskab, mismar, misra, mistik delta, mi'şar, mi'tede, mithraeum, mitoloji, mitolojik, mitra, mixed media, mizab, mobil, mobilya, moda, model, model kalıbı, modernist, modernizm, modern mimarlık, modern sanat, modlaj, modle, modele etmek, modül, modül, modüler, modüler koordinasyon, modüler planlama, modül ızgarası, mo-fang, moloz duvar, moloz taş, moncuk, monografi, monogram, monokromi, monolit, monolitik, monopil, monopter, monostil, monotip, morbidezza, mortuarium, motel, motif, mound, movimento nucleare, mozaik, mozaik sıva, mozarabik sanat, mozeta, mozole, mucarta, muderaj üslubu, mudra, mu-fang, muhaccer, Muhafaza-i Asar-ı Atika Encümeni, muhakkak, muhavvata, mukarnas, mulaj, mum makası, mumya, mumya portresi, murakka, murç, musakkafat, musalla, musalla taşı, musandıra, musanna, musattah, musavvir, muskalı, mutalla, mutfak, mutulus, muvakkithane, mucahir alan, mücellid, mücevveze, müezzin mahvili, mühendishane-i Berri Hümayun, mühre, mükebbire, mülebbin, mülemma şemse, meülevven şemse, Müstakil Ressamlar ve Heykeltraşlar Birliği, müşebbek şemse, müşrefiye, müstemilet, müze, müzehhep, müzehhip, müzeyyen, müzikalistler.

From the books of contemporary art theory literature, 'm' unit concepts are: mail art, manifesto, manipulation, marginalize (to), Marxism, Marxist aesthetics, mass media, matte key, materialaction, materialism, maximal interpretation, metaphor, meditative, medium, media, media art, media and society, space, illusion of space, merkezsizleştirme (decentralized), meta, meta-instrument, metaphor, metaphorical, metonymy, text, intertextuality, mimesis, mimetic, hybridization, and minimalism / minimal art, furniture-sculpture, modeling, modern, modernity, modernism, modern culture, modernist ideology, monatlaştırmak, monitor, monochrome monologue, multi-media, author / artist, mülksüzleştirme (dispossession), museum.

Concepts with 'm' lexical unit chosen from writings of instructors are: manipulation, Marxism, media art, metaphor, modern, montage, mutation, multivision, monochrome, modernism / modern art, modernity, mail art, minimalism / minimal art, moulage.

Table 1. Concept Analysis Table (concepts with 'm' lexical unit)

Analysed data set	Acquired unit count	Common in A dictionary	Common in N dictionary	Common in U dictionary	Total words
Literature data	46	3	10	5	18 (5%)
Reviews of instructors:	14	2	3	3	10 (%2,7)
Total	60	5	13	8	360 (%100)

3. Conclusion and Discussion

3.1. Conclusion

- According to analysis results acquired, ten sources chosen as literature were scanned and several concepts that explain, support and concern contemporary art from the point of different disciplines were found. Among these concepts, those starting with 'm' unit are found to be 46. Of these 46 concepts, their exact match count is 18 with a ratio of 5% within the 360 concepts starting with 'm' in three dictionaries.
- Concepts instructors inserted with (m) lexical unit were 14 units. Of these 14 concepts, their exact match count is 10 with a ratio of 2.7% within the 360 concepts starting with 'm' in current dictionaries.
- The ratio of including contemporary art terms is 7.7% in these three dictionaries including all concepts from various historical art periods.

3.2. Discussion

- This study suggests that contemporary art class are added to educational programs in order to provide Turkish visual arts preservice teachers with more aesthetic, sociological, philosophical and critical approach to contemporary art and with a closer watch on artistic developments. Because of comprehensive structure of these lessons, additional sources are needed to support both theoretical and practical information of students. Therefore, a dictionary of contemporary art is regarded as similar source.
- Total assets of current dictionaries regarding contemporary art are low in quantity with a ratio of 7.7% found through numerical analysis. Similarly, it seems impossible to suggest that current dictionaries help students of higher education in the course of comprehending and self-development regarding contemporary art. Accordingly, a necessity emerges for dictionaries that include information oriented towards theory and practice regarding contemporary art.
- This planned dictionary of contemporary art is thematic since it will include information about art starting from the second half of 20th century to present; it is interdisciplinary since it will have connection with several fields closely or remotely in relation with contemporary art; and it is alphabetical as an educational material for continuous consult by students of art.

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Network affordances through online learning: Increasing use and complexity

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Abstract

Computers, mobile devices and the Internet have enabled a learning environment described as online learning or a variety of other terms such as e-learning. Researchers believe that online learning has become more complex due to learners' sharing and acquiring knowledge at a variety of remote locations, in a variety of modalities. However, advances in technology and the integration of ICT with teaching and learning settings have quickened the growth of online learning and importantly have changed ways of learning and course delivery. Hence, there is a need to weave together the ICT experience of teachers to integrate ICT for appropriate and augmented learning.

Keywords: course delivery; ICT; network affordances; online learning

1. Introduction

The advent of computers, mobile devices and the Internet in particular, has enabled a learning environment called online learning. Researchers (Ramli, Darus, & Bakar, 2011) believe that online learning has become more complex due to learners' sharing and acquiring required knowledge at a variety remote locations. However, advances in technology and the integration of ICT with teaching and learning settings have quickened the growth of online learning and primarily have changed the way of learning and course delivery. The internet and networked technologies have well prepared the ground for flexible approaches to learning. In 2000, some higher education courses delivered on-campus were beginning to see the benefits of blending face to face with online delivery, but now all subjects at many universities and institutions of higher education mandate the inclusion of an online component, regardless of their mode. For example, the number of students who took at least one online subject was more than 1.6 million in 2002 and within six years (i.e., in 2008) the number rose by almost three-fold to 4.6 million (Allen & Seaman, 2010) with a compound annual growth rate of 19 percent. As a primary source for learning, the Internet has provided the availability of free and open enrolment in a variety of courses through massive open online courses (MOOCs). Considering the changes in educational aspects in parallel with technological innovations and different types of ICT resources, it is vital to consider the integrated innovations to facilitate the most effective learning and teaching. This paper will explore current trends in the literature pertaining to online learning in higher education.

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2. Literature Review

Increasing use of the Internet and almost constant online connection has attracted the attention of researchers to the use of online implications for educational purposes. Accordingly, the use of online learning has grown significantly around the world and has provided abundant opportunities for school-leavers and higher education applicants to fulfill their dreams with reduced anxiety about time management, location, and pace of progress off-campus issues. Online learning has made it possible for the educational institutions to increase the accessibility and opportunity of learning for those whose access was limited in the past. For instance, online education has become a fast growing sector of higher education in the United States (McBrien, Jones, & Cheng, 2009). Sun, et al. (2008) believe that “e-learning’s characteristics fulfill the requirements for learning in a modern society and have created great demand for e-learning from businesses and institutes of higher education” (p. 1184).

Thirteen years ago McNabb, Valdez, Nowakowski, and Hawkes (1999) argued that technological modes of instruction should be utilized as learning environments to enhance and expand learners’ capabilities, and therefore, to better accommodate the needs and requirements of learners and to assist them to reach higher levels of achievement and knowledge construction. Owing to the growth of new technology, online learning has shifted “from the domain of distance education to encompass all modes of educational delivery” (Anderson & Baskin, 2002, p. 136). For instance, Radford (2011) states that the number of students taking at least one online course has been increased from 8 percent in 2000 to 20 percent in 2008. Exploring students’ reasons for taking online courses, Braun (2008) claims that the most prevalent ones are related to financial reasons, flexibility, and the ability to complete course assignments, readings, and other requirements from home. Jensen (2011, p. 298) also speaks of the ‘almost universal access’, ‘increased flexibility’, and ‘preference among young adults’ as the factors contributing to the appeal of online courses. Any change in education systems as claimed by Farrell (2001) is mostly happening to achieve one or more of the following goals: improvement of access to educational opportunities, enhancement of quality in terms of both standards achieved and the learning process, and improvement of efficiencies such as increased productivity, greater return on invested capital and cost reduction or containment.

However, providing students with the opportunity of complementing internal classes with the online alternative has been one of the crucial developments. Traditionally, courses were offered in internal or face-to-face mode. Today, however, owing to the growth of technology, some courses are offered fully or partially online. This use of the internet improves the accessibility of tertiary education for all. This mode of internet learning and teaching would be also beneficial to those students who otherwise could not participate internally. For instance, in James Cook University both internal and external courses are offered in order to respond to the distinct demands of students; the internal courses include both face-to-face contact and online material whereas in the external subjects the students only study online. These modes of delivery may never entirely replace direct face-to-face involvement, but they have the potential to augment traditional instruction. For instance, Cooper and Sahami (2013) claim that online learning can serve as an effective means to students when other forms of delivery are not available. Accordingly, universities have utilized a number of online affordances to support learning and teaching.

Contention exists about which mode of learning delivery is superior. While some believe a face-to-face mode of instruction is superior to an online mode of delivery, others suggest that online courses should be used as a replacement or supplement to face-to-face classes. A third argument is that a blended learning experience that integrates technology-media supported and web-based applications is superior. As defined by Bath and Bourke (2010), blended learning is “effectively integrating ICTs into course design to enhance the teaching and learning experiences for students and teachers” (p. 1). Further, the authors state that blended learning engages both

teachers and students “in ways that would not normally be available or effective in their usual environment” (p. 1). Two recent research publications (Angiello, 2010; Bakia, Shear, Toyama, & Lasseter, 2012) have reported on this issue. The findings of both meta-analysis reports reveal that the performance of students taking all or part of their courses online is better than their face-to-face counterparts. Likewise, they report that a combination of online and face-to-face instruction has more advantage relative to merely face-to-face instruction or solely online instruction. Accordingly, Richardson et al. (2012, p. 98) suggest that “online learning deserves more serious and more rigorous study” to identify the properties of successful learning environments.

Online learning has the potential of generating new revenue and providing learning opportunities for those with limited access to traditional courses. This mode of learning works best for people who are well-organized, self-motivated, and able to manage their time (Gansler, 2007). Furthermore, online affordances and web tools give more communication chances to students who seem to be shy and introverted through giving them more chances of communicating and expressing themselves. The online environment gives them the privacy and space that they do not find in ordinary face to face interaction (Dewar & Whittington, 2000). Taking part in the online interactive communication makes them feel more positive about their learning abilities as they do not need to take turns to speak or worry about interruptions. However, online learning has also shown to have the disadvantage of high dropout rates and failure in the competitive market (Sun et al., 2008). Some users stop their online learning after an initial experience (Sun et al., 2008). Curless (2004) enumerates lack of finance and time, isolation and lack of self-discipline and motivation among the reasons of dropouts.

Online affordances, web tools and new technological innovations are typically designed to improve the quality of learning and teaching. However, the reverse could be true. Thus, it is important to consider the advances in contemporary pedagogy in parallel with technological innovations and different types of ICT resources.

2.1. Net-generation students

The emergence of the Net-generation indicates that universities have to address and include the role of technology in their teaching and learning. Net-generations are born into and grown up in an era of computers and the Internet and frequently use them. They have grown up in a highly wired environment (Ismail, 2010; Oblinger, 2008; Worley, 2011), are almost always connected via new devices and social networking interfaces. The Net-generations are “demanding a change in the classroom because of their ability to gather information faster than any other generation” (Sheskey, 2010, p. 197). Dede (2005) also believes that as the result of growing up in a rapidly changing world, Net-generations are fast and like quick response times in all the acts of their life, for example, playing a game or responding to an instant message (IM). They place more value on speed than on accuracy. Their different learning patterns as well as reasoning principles may head them in a different way of learning compared to their previous cohorts (Shakarami, 2012). They are exposed to oceans of information on the Net and it is this immersion in virtual environments that may make their learning different from those of earlier generations. According to Windham (2005), although online communication is often viewed as contrary to personal interaction, it is not certainly seen as such for the Net-generation. The Internet has become a medium of interaction for them through its global reach that provides vast international resources and enables learners to access useful learning material and opportunities. In a survey conducted by Terrell (2005), it was revealed that considering the computer and Network facilities handy to Net-generation, it is not surprising that they possibly expect technology to support their learning. The Internet provides them with the chance to get in touch with friends, take part in online talks, and share videos and clips with friends all around the world. In short, it allows interaction with people and material to a great extent. According to Prensky (2001), Net-generations have more tendency to communicate visually, integrate virtual and physical, learn better through exploring, like instant

responses and can quickly change their attention from task to task. They like online socialisation, blogging, and interactive activities. They often perceive the Internet as an indispensable part of their life in that it makes things faster, facilitates learning, helps shy students express their ideas, and lets students cooperate more in their online interactions and most importantly, keeps them connected to the outside world at all times.

Although Net-generation learners spend so much of their time online and are plausibly expected to have a strong preference for online courses, the reality is sometimes otherwise. Oblinger and Oblinger's (2005) survey study found that "face-to-face" interactions were preferable to online options (p. 2.11). According to the researchers, "the implication is that colleges and universities should not assume that more technology is necessarily better" (p. 2.11). In their perspective, utilizing the technology "to increase customization, convenience, and collaboration is well received; however, its integration into most courses or curricula is not as deep as into students' personal lives" (p. 2.11). In another study (Kvavik, 2005) carried out among 4000 students, they were found to have a "moderate preference for technology" with regard to teaching and learning. They also had "mixed feelings" towards use of technology in the classroom, and believed many of the ICT skills necessary for learning were acquired at college (p. 7.17). In this regard, the relative efficacy ICT and technology in online and face-to-face courses is still under question and needs to be revisited.

2.2. *Massive Open Online Courses (MOOCs)*

Massive Open Online Courses (MOOCs) are a relatively recent online learning phenomenon in modern education delivery that has significantly attracted the attention of media and higher education providers. MOOCs are free courses delivered through the net to a large number of students and were first introduced in 2008 by Dave Cormier (Yuan & Powell, 2013). MOOCs have the potential to take advantage of the changes that are currently happening in higher education due to globalisation of education, constrained budgets and the new demands of the information age and Net-generations. The existing wave began in 2011 with the enrolment of 450,000 students for three courses delivered by the university of Stanford (Vardi, 2012). Over the last five years, many prestigious universities have introduced MOOCs (e.g., Harvard, Stanford, MIT, Berkeley), with many more investigating the feasibility of this mode of education (Paldy, 2013). Recently, the University of Melbourne became the first Australian university to offer free online courses in higher education. The University's first MOOCs was offered in 2013 and is heavily subscribed with more than 148,000 enrolments. Through MOOCs, the university attempts to reach a wide and diverse range of learners who otherwise may not have the chance to set foot on a university or college or may not care about credits.

Despite its recent growth and popularity among some prestigious universities, the authors believe that MOOCs will not replace universities and cannot be considered as an alternative credential to the traditional degree. MOOCs have the potential to assist higher education in solving some of the problems to control their unsustainable costs, increase their enrolment rates, increase their graduation rates, and to compete and win the attention of students in order to survive among multiple higher education providers. However, MOOCs are still in their infancy. They are suffering from the lack of serious pedagogy (Vardi, 2012), the market value of certification of courses (Cooper & Sahami, 2013; Yuan & Powell, 2013), short of credit awards (Yuan & Powell, 2013) and plagiarism (Cooper & Sahami, 2013) and other yet to be revealed factors. Vardi (2012) states that "the enormous buzz about MOOCs is not due to the technology's intrinsic educational value, but due to the seductive possibilities of lower costs" (p. 5). Thus, the current trend of learning and its impacts on the quality of learning and course delivery needs further investigation.

In summary, the changes happening in higher education are inevitable. With the advent of new technologies and demands of the new generation learners we should expect more educational changes in higher education. There is no doubt that the courses can still be delivered without considering the new changes and the integration of new technologies brought about by the Internet. However, there could be a severe disconnection between the teachers and their students as the way that they will be taught in universities and schools will differ from the world that they live in. We also believe that implementing any change or integrating any new technology in education has its own challenges and complexity, like anything new and that strategies to support implementation should be backed up by high quality, empirical evidence provided by research to avoid wasting potentially expensive resources or by not using digital technologies in a way that will ensure that they reach their potential in scaffolding learning.

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New approaches in design and vocational education: impact of the internet design education and digitalize

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Abstract

Research...Read...Examine...Writing...Take a photo...Blog writing...Twitter... Instagram craze...Chat...Nudge...Plant feed on Facebook...Learn... Teach... Changing concepts of today, transformation with the change occurring in the world can not be prevented, brought in the name of education and art education in the digital world, our lives are we able to use our favor?

Nowadays, communication, technology and internet have an important role in life and especially in education. Nowadays, students generally use technology for communication also education.

Given the technological development process and the implications of this process, the result of the future will be computer-aided schools. This form of education, without a doubt, the new education system, as well as a new show that will emerge educator and practitioner profile. Now educators, to learn, to invention, to think, to try a position to teach (Gökaydın, 2003).

Internet access in conjunction with the globalized era, McLuhan the "global village", referred to as undertake greater responsibilities in today's world of artists and designers. Changing and globalizing world that the Internet that brings digitalize Digitalization and the transformation progresses, in the future a nested formation will come up with the Internet Digital media is growing rapidly in Turkey as in all over the world.

Nowadays, communication is the focus of digitization. Designers can play an important role in ensuring that communities and people to adapt the process of digitalization Individuals, political, technological, cultural perspectives have effects in the direction of the correct knowledge Visual communication designers and designers with digitization through the internet masses of the provision of communication, designs to achieve a wide audience, a universal approach to review and have authority to interpret.

To ease the digital conversion brought with it also raises different issues. In this context, study, and selected as the typical example on the internet As concept visual language and design of a particular language and identity is the universe of research institutions with the digital designs. Data to be collected in accordance with the sample examined, the results obtained will be examined in accordance with the concepts of digitization conversion, and solitude

Digitization process, the positive / negative aspects will be examined. Emergence of new approaches will be studied to be determined.

This study, together with the process of digitalization of the concept of visual culture, art, design, internet publishing and digital broadcasting is to investigate the effects and rewards of ownership.

Keywords: education, digitization, transformation, communication, technology

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Introduction

The first reason that the necessary restructuring of teacher training institutions in Turkey is changing and evolving world of new professional roles and responsibilities in the process revealed. (Council of Higher Education [YÖK], 1998).

In today's conditions in the twenty-first century, one of the most important factors that determine the levels of development is possessed international human power attributes. Skilled manpower training is especially the task of education and vocational training institutions. Vocational education and training should also benefit from innovation to carry out the task effectively.

The need is increasing day by day for qualified individuals who mainly with scientific, economic, cultural and contemporary dimensions, equipped in accordance with the requirements of the era in all area of life itself and contribute to the environment with these accessories.

In this environment, the educational institutions has a position that specially obliged to perform the essential functions such as providing social, economical and cultural continuity of nations and socialization of individuals , transfer them the culture of the society, providing harmony between raised generation and the political structure of society, generating young people with leadership abilities and training of qualified manpower. (Bursalioglu, 1998, p. 37).

1. Purpose

In this study, the positive / negative aspects of the process of digitalization will be examined and the emergence of new approaches will be looking for. New approaches to the design and vocational training along with the digitalization process; occurred with effect of internet on digitalization , new approaches in education and benefits are aimed to be investigate.

2. Method

The screening model was used in this study.

3. Theoretical Framework

3.1. History of Internet

Internet is an essential part of today's life but it has a very short history. Basis of today's virtual realm came from a project initiated by the American Ministry of Defence and some American universities.

This project, called Arpanet was launched in 1970. At the beginning, ARPANET consisted of a network of interconnected 15 computers only and closed to private users. Rapid development of the Internet was the idea of the 70s.

E-mail appeared and the Queen of England sent her first e-mail in 1976 as the idea of internet began to become popular.

The 80s was the scene of technologically important steps. In 1984, the first domain names began to be used but host number was only 1000. The time of the explosion of the Internet is undoubtedly the 1990s.

Internet world as we know with 'World Wide Web' statement was introduced in 1991. Number of hosts was exponentially increasing each year. By 1994, the number of sites on the Internet 10 thousand, the number of hosts had reached 3 million and in this new world entrepreneurs realized new earning doors.

Banks and shopping malls began to open virtual branches. The first internet radio launched. Governments and then many organizations opened website. A brand new understanding of marketing and economics was born.

In 1994, the first ad on the internet was on the screens. The first hacker arrested in Hong Kong in 1995. The domain name was paid in 1995. Software wars began between Netscape and Microsoft. (www.ntvmsnbc.com)

3.2. Internet and Education

According to Boldt, Gustafson and Johnson (1995), the Internet is an excellent tool to use in order to enrich students' learning habits and experiences. The first target of the use of this tool is introducing students to the Internet and helping them to create a worldwide attitude of being a part of this network. In the more advanced levels, in this network, to enable students to benefit from project-based working environments efficiently (Akbaba-Altun, 2011).

3.2.1. The Importance of Lifelong Training for Vocational Education. (www.mebnet.net)

- Nowadays, companies all over the world are now able to compete with qualified employee.
- Qualified employees are more important than materials and technology.
- There is a need of qualified employees who implement all kinds of life-long training program, easily adapt to business changes and closely monitor and implement the the technology. It is very important to gain these achievements in vocational education institutions. In the short term, these achievements to be gained via "CERTIFIED TRAINING"

- Training in the universities and then applying it in the workspace last two years with outcome of the training program. When asked to companies they say they don't have such time.
- Employer-oriented programs to be developed and training evaluating education programs should be established.
- In this case, a more compact education package, with short-term returns for business life can be given based on "certification system"
- Companies can hire more quickly the employees of this nature.
- While this structure is creating; because learner will be thrown into a career after graduating; employer to be in the front and create a structure based on employer's ideas. In the meantime, while creating the scope of vocational training, it should be done with consensus of ministry of employment, the ministry of health, municipalities, universities, industrial companies, public opinion and the Council of Higher Education.
- Because of their structure design education and vocational training have dynamic content. Education which is given should be keep up with the dynamic structure to satisfy employer expectations.

Qualifications need to bring somebody under MEYAP Vocational Education Restructuring Project are as follows: (These competencies are similar and the priority sequence varies in each country).

- Sense of Social Responsibility / Skill
- Communication Skill
- Technology Skill

Scope of Social Responsibility Skill: individual acquire skills to take the job, to conclude and to identify a source of the problem and solutions.

Scope of Communication Skill: The project-based training should be established. For ability to communicate, data should be determined for being transmitted and understood correctly.

Scope of Technology Skill: We should accommodate the technology. Educational institutions should be included skills training courses for businesses.

With each individual is valued move, with the principle that there must be an area to be successful in and the area should be discovered. Otherwise, it is pushed out of education life for individuals, for the sector also they remain at risk of extinction.

3.3. Digitalization / Digital Publishing

Following the restructuring process at the end of November 2009, Adobe has decided to expand its investments in the field of digital publishing. As a first step in the organization, books, newspaper and magazine publishers will be focused on. According to experts, another step is to move even higher positions what InDesign (popular tool for known publishers) do with VDP (Variable Data Printing) and other similar publishing technologies. Adobe has all the technologies like Adobe Reader Mobile SDK (ebook improvement tool), Adobe Content Server and Adobe Digital Editions to move digital newspapers, digital magazines and digital books to the next stage. Now it is easier to understand the size of this market when we look at reading device wars abroad, between Amazon and consumer electronics giants such as Sony.

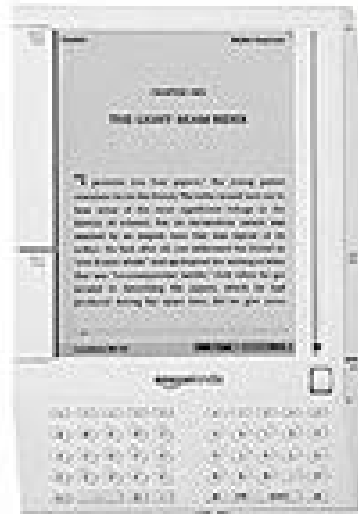
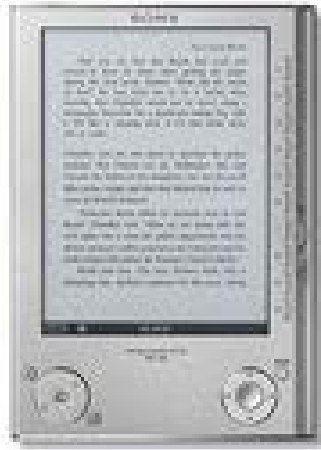


Fig. 1. Example of “Open Screen Project”

Acceleration of OpenScreen Project led by Adobe and after flash applications in mobile phones, Adobe has found its market position. In this respect, Adobe's special organization to be worked on digital publishing is last piece of the puzzle working on since the beginning of this year. Adobe allocated an important budget on this issue since 2010. Because they knew instead of paper, newspapers, magazines and books will be read out on every screen. Whether membership / subscription or advertising, whether through direct sales new distribution methods would be less costly and faster to reach a wider audience.

Moreover, the money for this bet is not just from Adobe. New York Times use AIR-based application that delivers out of the newspaper, media's most prestigious worldwide publishers share this vision of Adobe. In Turkey, we can see the reflection of this vision with more importance from the giant publishers' to websites and the success of interactive agencies which are recently tried to keep out of the advertising market. When you think in the frame of this vision, the acquisition of Omniture which has ratings of the digital world, play an important role for the companies giving importance to the privacy (www.adobegunlugu.com)

3.3.1. Company Examples for Digitalization:

3.3.1.1. Use of the Internet and the increasing recognition of Brand: Rowenta Case

Rowenta vacuum cleaner is a well known brand in Turkey, but was not satisfied with the situation. Rowenta is well known on the global markets with innovative products also in the category of personal care, but in Turkey Rowenta is known only with vacuum cleaners. It was not enough for the brand so company officials acted.

In the internet campaign Of Rowenta, selected group of consumers was between the ages of 15-24. It reached the target audience via Internet and retail outlets. Facebook, Google and Youtube are used effectively. Following these studies, the results of research carried out by survey via the Internet showed an average 16 percent increase in brand awareness., Those who want to buy a product before and after the Internet-based campaign has been increased of 41% on average compared to rate. (www.capital.com.tr)

3.3.1.2. "Pure New Media"

Burak Gözalan founded the Agency 27 9.5 years ago. 6 years ago he saw the potential of the digital sector and has launched Pure New Media. In 2010, he merged these two companies. By doing this, a digital agency was joined with a traditional agency. (www.capital.com.tr)

3.4. Internet-Based Education: The Case of vidobu.com

Vidobu's website is an example of the reflection of the Internet on education. In the framework of this website , as well as theoretical and practical training at universities, people watching project-based application videos and learned a lot via internet. These applications are realized by watching the recorded videos. Number of members as of May 2013 was around 23 160 +. It has a total of 2454 training videos and 91 education sets.

Category titles of education within the framework of this database are as follows;

- Digital Publications,
- Photography,

- Graphic Design,
- Interactive Design,
- Internet / Social Media,
- Operating System,
- Mobile Programming,
- Office / Information Worker,
- Video Production,
- Web Programming,
- Web Design

From here, it is possible to say that the internet has positive effect in design education.

One of the sectors affected and changes direction inevitably with the development of the internet is education sector. This sector remains face to face with both positive and negative inputs of Internet and digitalization. If you take a negative point of view there are only two negative returns. A group of students in the project / assignment preparation / lesson preparation: being addicted to the Internet, and creating (copy + paste) student profile.

However, there is quite a lot of positive gains if we look. One of them is the use of digitalisation and the Internet in education. Internet, serving as "distance education" in some education systems is also the executive in the education.

3.4.1. Contribution of Internet to Education

Internet is a great tool to enrich students' learning habits and experiences. The Internet network provide project-based studying environment. Extensive use of the Internet in schools brings these achievements to the students. (yunus.hacettepe.edu.tr)

- Internet creates an environment of mutual information sharing, and offers the opportunity to discuss their ideas with other users.
- Internet provides the ability to communicate with people in different regions within the framework of common interests.
- Internet, give students skills like research on this network and search skills. Proper techniques for effective use of the information accessed can also be used.

Wilson and Marsh II (1995), draws attention to two important inputs of accessig to the Internet. The first of these, students' Internet communications, research, access to information, and sharing capabilities. In this case, the individuals prepare themselves for information-based technology environment after graduation. In this case, the Internet, give students a constructive role and each student as an individual learner, a researcher, communicator and as individuals who are willing to work together, to form their own sets of information (Pektaş, 2011)

Other important input, the access to the Internet removes all the boundaries also the classroom walls. Thus, they gain self-confidence for communicating. (Pektaş, 2011)

According to Parnley (1994), the Internet enables students to share their ideas with classroom projects, and reach the necessary critical thinking skills to use information as individuals

4. Method

In the study "screening model" is used. Model is describing an incident somebody witnessed and telling without unnecessary detail and efforts to find formulas and symbols to summarize. (Karasar, 1984.79). The method used in this study is screening model.

Screening model is a research approach which describes a condition that existed in the past or present as it is and aims to identify it. Whatever the subject of the research , there is no effort to influence and change them. Desired things are evident. The aim is to identify and observe those things correctly. The main purpose is to observe without attempting to change. (Karasar, 1984.79) In screening model, the purpose is not only to collect data, but also process and interpret them.

5. Result and Conclusion

Graphic design and advertising industries are one of the sectors most affected by the communication facilities provided by computers.

From previous years, the scientific advances of the 20th century has continued to increase, as a result of scientific discoveries emerging technology products has become greatly affect on people's lives. Simplifying access to information through technology, and to be the first one to use it and make it usable, has an advantageous position compared to others. In old times, most valuable people were the people who knows everything but it replaced by people who knows where the information and how to access it when we need.

Research examples of the brand / promotion / education continue its activities over the internet and the companies said there is positive contribution of the Internet.

(According to Akbaba and Altun ,2011) students in the use of the Internet in schools is thought to provide the following achievements:

- Internet creates an environment of mutual sharing the information for people, and offers the opportunity to discuss their ideas with other users.
- Internet provides the ability for a particular group of students and teachers to communicate with people in different regions within the framework of common interests.
- Internet gives students search and research skills to make their own search on the network around the world. Proper techniques for effective use of the information can also be used.

If learner participates actively in the learning process, learning takes place more easily. (Gokce, 2010).

- For learners it is easier to learn meaningful and logical issues.
- Easier learning takes place if there is a motivation created with individual's interest.
- Repetition is very important for learning of skills.
- If learner establishes connections of relationships between topics learned, learning becomes more permanent.

To give an example of the reflection of the Internet on education institutions, egitimsiteleri.gen.tr, vidobu.com, adobegunlugu.com, sanalkurs.net sites can be counted.

In the framework of this websites, as well as theoretical and practical training at universities, people watching project-based application videos and learned a lot via internet. For instance, as of May 2013 Vidobu has the number of users 23160 +’s around.

Technology education is important in vocational education and design.

Education model which gives individuals technological culture and values is important.(Gordon, Hacker and Vries 1995: 225). Accordingly;

- Development of culture of technology,
- Exposing individual interests and skills,
- Gaining purchasing power to select the technological products and services to buy.
- Developing the competencies for using technological products and services,
- Required by working life and professions, skills and attitudes essential to gain.

6. Recommendations

- Design education should focus on a critical mindset compatible with communication tools
- Design education should support communication and collaboration strategies.
- Design education should prepare learners more in accordance with the requirements of change.
- Now the world is progressing in the process of digitalization. Electronic devices, phones, tablet PCs, internet applications are available to the individual at this point.
- Design education transferred into three dimensions from two dimensions. Digital devices, programs for internet applications, the sound, image, video, motion and typography are together. Therefore, multi-media education is to be addressed in design education.
- New concept in design promises to arrange nature, people, and technology, and provides a balanced harmony between the east and west, north and south, past, present and the future. This is the meaning of great harmony. (Karamustafa, 2003).
- Thinking power about the near and far future, will be an essential part of the design. Concept of thinking and designing skills should be given to the individual.
- Internet also provides the possibility to easily access the data. According to Clemmit (1996), internet provides access to information in a wide perspective of science, not only in teaching art education, but also in science and social science. Dyril and Kinnamen (1995), claims that there is no such an application can provide the Internet's easy and effective communication between students and teachers and models for real-life for student-teacher relationships.
- When learners share a text via the Internet, share their reading skills of analysis, give them synthesis skills as well as activities that improve reading skills on the internet For this reason, online courses / internet alternatives in educational systems are also useful.
- Internet gives students active learning skills.
- It contributes to student-centered education.
- Internet improves problem-solving skill.
- It supports the activities of having first-hand information.

6.1. Benefits of Internet for Education Institution

- Communicate via e-Mail
- Families can access to information about school and student with a password.

- Global education activities
- Registering for classes and learning grades remotely
- Monitoring Developments
- Equal Opportunity
- Transparency in management.

6.2. *Benefits of Internet for Education*

- Student-centered
- Exploring
- Resources
- Technology support for education
- Global education
- Cooperative (collaborative) learning
- Individual learnings
- Rapid spread of information
- Global libraries
- Versatile and global communication
- Equal opportunities in education
- Different opinions
- Project-based teaching
- Cultural exchanges
- Information storage and virtual library.

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4th International Conference on New Horizons in Education

New horizons in teacher preparation

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Abstract

Scientific and technological revolution has had a significant impact on all aspects of life, which made the organizers of the education required to search for new methods and new educational models to face many challenges. Education is no longer depending on the traditional methods which depends on the teacher in transferring knowledge to pupils' requirements and accommodate with large numbers of individuals at all levels. The purpose of this paper is to explore the new forms of teacher preparation, such as virtual teacher, based on the principle of freedom from the constraints of time and place where pupils can learn, according to their time, and in the place of their choice. The merger teacher which meets the requirements of normal pupils and those with special needs.

Horizons ,Teacher, Preparation ,Merger,Virtual.

Introduction

Present scientific and technological revolution has a significant impact on all aspects of life. Therefore the organizers of education have to search for new methods and educational models to face challenges resulted from this revolution. Education is no longer depending on the traditional methods which make the teacher the only tool in transferring knowledge to pupils . This has led to the emergence of new forms of education and teachers, such as virtual learning, merger learning, shadow teacher and mobile teacher. Virtual learning based on the principle of freedom from the constraints of time and place where pupils can learn, according to their conditions and suitable time and place. The merger learning meets the requirements of normal pupils and those with special needs. The shadow teacher who cares of a specified number of pupils in the classroom. The mobile teacher who is taking care of specific number of schools. All these and other formulas became necessary for attracting educational systems attention. In present paper I will deal only with two of these forms ; merger and virtual teachers.

New Roles For Teachers

It should be emphasized that a specific approach adopted to determine the roles of teacher linked to the cultural context. Education , as a general social affair, are associated to cultural determinants which include social , political, and economic dimensions .

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Now the question is, what are the most important variables and challenges that affect the cultural context of the world in the post-globalization, and imposed these challenges on teacher preparation institutions to carry out their new roles?

1 - Variables that led to the Emergence of New Horizons for the Teacher.

The following are the most important variables and challenges that affect the world's cultural context, and imposed new roles on the teacher and new preparation as well , these variables are :

a -Globalization and the Emergence of the knowledge Societ

The modern economy, based on science and technology, is moving towards globalization, which had different reactions towards it in different countries. Shift to a knowledge society means that society encourages innovation , creativity and scientific research. Responding to technological information and coping with transition to a knowledge society faced several challenges such as achieving a democratic knowledge - to avoid authoritarian, and development cosmic intelligence - to cope with the rapidly changing global circumstances.

b-The Communications Revolution.

Communications revolution constitute a variety of sources and technological tools used in the transfer of innovation and dissemination, storage and management of information . These operations are an integral part of the educational process as it can be used as follows:

- Connect the subjects and information quickly to students with no regard to place or time.
- Working to make the connection between teachers easier will lead to more cooperation . This will affect the teachers preparation for the future society based on knowledge.

c - Growing Interest In People With Special Needs :

Countries that believe in the rights of the children with special needs, has started a new trend toward them. A specific technique appeared to provide opportunities for those children to engage them in educational systems. In light of the framework of the new models of education systems, which started to emerge, we can monitor some new formulas, that are expected to be common and spread in the new century .

New formulas For Teacher Preparation Merger Teacher

It was controversial results which witnessed, in the past decades, the field of special education that made researchers in this field agree on the need to rethink of the traditional special education programs. Specifically, there is a consensus now to the need to shift from separate education institutions to integrated forming in general education schools which have to rethink of the preparation and qualification programs presented to teachers. There is now an urgent need to find a special quality of teachers can deal with categories (normal and those with

special needs) at the same time in the same classroom. This means that a teacher must have knowledge, information and tools which will be used by him to deal with the two groups; and meet their needs in the same classroom.

Requirements of Merger Teacher Preparation

The merger teacher preparation needs to acquire numbers of skills and abilities to help him to deal with two very different categories; namely normal pupils and pupils with special needs. We can mention these requirements as follow :

- a - The ability to deal with differences and individual needs of the two categories in order to meet their requirements.
- b - The ability to use teaching methods and means of various educational conform with the two different categories in the classroom.
- c - The ability to participate in the assessment of the capabilities and needs of pupils using a variety of assessment tools.
- d - The ability to modify the curriculum, materials and teaching aids to suit pupils' needs.
- e - The ability to observe and record the behaviour of each pupil in the classroom situations which may result from the presence of two different categories in the same classroom.
- f - The ability to organize classroom environment to allow pupils to benefit from each other and participate in the same educational activities.

Efficiencies For Merger Teacher.

Teachers have to acquire many skills to work in merger classroom in order to meet the requirements of the application integration policy, such as cognitive skills, competencies skills and competencies related to teacher's trends and attributes to merger policy.

In light of the above we can determine the qualifications of teachers merger as follows:

A - Cognitive Skills:

They are kinds of knowledge, information and concepts that must be owned by a merger teacher :

- 1 - The teacher must be familiar with the trend which calls for the integration of pupils with special needs in the merger classes.
- 2 – Having a general knowledge of the principles of merger education.
- 3 - The teacher must know how to provide services to adapt and modify the curriculum and teaching methods and varied measurement methods suits the individual needs of pupils.
- 4 - The teacher must have gain knowledge of individual differences and types of special needs.
- 5 - The teacher must have an understanding of the procedures related to merger education.
- 6 - The teacher has to know the nature of the disability, and the level of employment of life experiences.
- 7 – Teacher must be familiar with other aspects related to special education, such as different growth areas (social, emotional and oral language development), communication, behavioral, social and job skills.

- 8 - The ability to observing and recording of pupils' behavior in merger classroom situations.
- 9 – Knowing the basic principles of the tools used by children with special needs.
- 10 - Sufficient knowledge about prohibited activities for each category of pupils with special needs.
- 11 - Find out effective ways to modify ordinary children attitudes towards their colleagues with special needs.
- 12 -The ability to build helpful relationships with the families of pupils with special needs.

B - Competencies Skill:

Competencies are needed for teachers who deal with pupils with special needs for the success of the process of education, side by side, with their normal peers in the same classroom, which include basic skills in the techniques and methods of teaching as follow:

- 1 - The ability to communicate constantly to both pupils in the merger classroom.
- 2 - Planning and supervision of individual education plans.
- 3 - Knowing accurate measurement to the needs of the pupils within the merger classroom.
- 4 - Being able to management the merger classroom.
- 5 - Being able to use technology for pupils with special needs in order to increase their participation in the classroom activities .
- 6 -The ability to keep up with what's new in the field of merger education.
- 7 -The power to solve the emergent problems.
- 8 - The ability to promote positive relations between pupils with special needs and their peers in the community of learning by giving them learning tasks to help them understand disparate contributions that can be implemented by each pupil.
- 9 - Working as an active member in the multi-disciplinary team that designed and implemented and assesses the merger programs.
- 10 - The ability of the diversification of teaching methods that suit the pupils in the merger classroom.
- 11- Understanding the principles of growth for special needs and ordinary pupils.

We can say that , in the light of global trends towards the policy of merger, the merger teacher is an important formulas and has to perform many duties .

Virtual Teacher

The challenges of the present time, has been emerged new forms of education. The most recently of them is Virtual Education, as it aims to transfer and deliver various types of knowledge to pupils in different places of the world using technology information without being bound by the limits of time and place.

Therefore the role of the teacher in this educational process, has changed. That's why the teacher needs a specific kind of preparation for his new roles in the virtual education.

Requirements for Virtual Teacher Preparation.

a - Designer of Learning Activities.

The design of the virtual learning is a process which means planning, construction and development of education. Teachers have an important role in the design expertise and educational activities offered to the pupils, and the design of virtual learning environments to suit the interests of pupils.

b - Technologist.

In the light of rapid developments of distance technological education , and the emergence of virtual schools, the teacher must be efficient in using technological innovations and computers to be able to use the network in the learning process.

c – Researcher

Teacher must be concerned with all what is new and related to the subject matter presented to his pupils, as well as evaluating courses through the network .

d - Facilitator.

Teacher is no longer the main source of information, and no longer function to transfer content to learners . His role became facilitate access to information, and guidance and counseling learners during their learning through the network, or through their dealing with each other in the study of decision, or with the teacher.

e - Director and leader of the educational process.

The teacher in the virtual education system is the educational director of the position, who locates the greatest burden in enrolment decisions and determines the dates of virtual meetings, methods of display content, evaluation methods, and the dialogue way educated together.

f - Encouraging pupils interaction.

The virtual teacher ,also, must encourage pupils to interact, and acquire knowledge. There are four types of interaction in the virtual education, namely:

- learner interaction with content:

The interaction of the learner with the knowledge leads to the acquisition of knowledge. This interaction depends on the previous educational experiences for learners and the learner's ability to interact with the content presented to him.

- learner interaction with the teacher:

Perpendicular interaction depends on the willingness of the learner and the teacher to communicate. This type of interaction is often associated with the fact that the distance puts us in new roles, hence it must be a merger between the learner and the teacher for a learning process. The teacher must support and encourage each learner to interact with him.

- learner interaction with the learner:

An horizontal interaction between learners, where pupils interact with each other, will integrate and improve their motivation to learn.

- learner interacts with himself .

The learner's ability to use technology in general and the technology of virtual reality in particular ,will make them interact with themselves easily . No doubt that the training and experiences are the perfect solution to get rid of pupils' fear of using technology .

G - Rectifier

pupils assessment in the traditional system depends on exams that measure often the pupil's ability of memorizing . But in the virtual classroom system evaluation process is different . Therefore the teacher must consider the following :

- Assigning pupils some different duties such as looking for information through the virtual libraries.
- The teacher through virtual classrooms can urge his pupils to practice activities in the virtual laboratory.
- The teacher classify pupils to many projects groups to help them to interact.
- Develop rules and procedures sufficient to prevent cheating, and make sure to match the results of pupils with their actual levels.

Competencies Required For Virtual Teacher.

Competency can be defined as the body of knowledge, skills and attitudes owned by the teacher to achieve educational goals, and access to the desired results at the lowest cost of effort, time and money.

Therefore, the efficiencies of virtual teacher means : information, skills and trends in the field of virtual education technology necessary for the teacher, to reach the degree of perfection in his performance for his roles in the virtual education.

In light of the above efficiencies for virtual teacher can be identified as follows:

First: the efficiencies related to computer skills.

- 1 –Dealing with Windows programs with high efficiency.
- 2 - Use regular files and compressed files.
- 3 - Dealing with magnetic laser discs such as CD and DVD discs.
- 4 - Using a scanner.
- 5 - The ability to determine the appropriate computer software and video programs.
- 6 – knowing the different methods of communication network.
- 7 - Knowing problems and technical malfunctions .
- 8 - Using of the different Internet browsers and Data Protection Software .
- 9 - Download and upload files to and from the network.

Second: Efficiencies as a designer.

Teacher in virtual education should provide themselves with designer educational skills in order to be able to design subject studied in the virtual education system . These skills are represented in:

- 1 - The development of educational programs and curriculum, projects and lessons, that ensure the achievement of the desired goals.
- 2 - Familiarity with everything that is new in the virtual education.
- 3 - Familiarity with everything that is new in the field of internet, and how to design web sites and pages and all kinds of multimedia.

Third : Efficiencies as a consultant and facilitator :

- 1 - Attention to respond to pupils' inquiries.
- 2 - Notice the performance of pupils to determine their progress.
- 3 - Determine the level of pupils to guide them.
- 4 - Advise pupils with the skills they need.
- 5 - Clarify the behaviour over the network.

Fourth : Efficiencies as a Manager and Leader Of The Educational Process :

- 1 - Develop notebook time to accomplish tasks.
- 2 - Encourage interaction by means of interaction.
- 3 - Scheduling meetings and activities.
- 4 - Management of discussion during the learning process.
- 5 - Identify methods of interaction between learners.

Fifth : Efficiencies as an Evaluator :

- 1 - Prepare tests for certain targets.
- 2- Use methods and tools of measurement and evaluation suited to measuring and evaluating teaching skills.
- 3- Using the results reached by various measurement tools in determining the strengths and weaknesses of pupils.
- 4 - Plans for remedial action using feedback.
- 5 - Uses continuous assessment, which occurs after every step of the educational process, and closing calendar, which occurs at the end of each teaching situation.
- 6 - Evaluation of electronic hardware and software.

Finally , we can say that not every teacher candidate can work in a virtual learning environment, where he faces many challenges, and has certain responsibilities, which require him to perform many duties.

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New insights into human aging and their daily lives in textbooks for teaching the mother tongue- intergenerational education

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Abstract

Societies of the old continent are aging and we are facing the challenge of building a "living bridge" between seniors and juniors. At the same time the model of extended family, in which children would naturally gain the knowledge and ability to live together with their grandparents, is fading away. Therefore, how should we sensitize children to the problems of the elderly? How to create in them the attitude to show willingness to live in an aging society? The paper is an attempt to discuss the actual image of the elderly man in various works published in mother tongue textbooks (on the basis of the study of the Polish language) and present a postulate of a novel concept of contemporary life and the problems of the golden-ages.

Seniors and juniors; senility, problems of the golden-ages

1. Main text

Today's professionally and socially active generation has to think about its autumn of life right now, both in the context of the current generation of aging parents and grandparents, as well as in the context of its own future. Old age is naturally inherent in human life, making the man *a homo viator*, perpetually travelling towards the end of his earthly existence. Statistics clearly indicate that at present we are dealing with a phenomenon called *population aging*. This demographic shift is particularly visible in European countries. In the coming years, we should implement social programmes which will fundamentally and measurably include aging citizens and seniors within the group of active population. In these processes, particular attention should be paid to the intergenerational integration, which should play a crucial role in holding the young and the old together, and also in "buffering" the adaptive states. The education of children must therefore skilfully develop their progerontological attitudes. Continuing education for seniors could focus on issues concerning the life of young people. With such "bridges," based on the knowledge about the needs and the routine of everyday life, it is possible to build a conscious and fully tolerant mixed-age population.

In the literature, predominantly in the books which combine the disciplines of economy and sociology, one may encounter a thesis stating that senior citizens use resources which should be intended for children. There are statements that define the elderly as those who take social goods (mainly health services and financing the basic necessities of life) away from the young generation. The budget of an aging country increasingly moves funds towards the programmes aimed at the elderly. This happens at the expense of funds which could otherwise be

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allocated to investment programmes for children. Taking this into account, one could conclude that this demographic change will affect children, because they will lose a chance of successful entry into the adult social life (Uhlenberg; 2010).

It is therefore necessary to redefine the currently perceived intergenerational relations and to think how senior citizens can influence the welfare of the younger generation. Another noteworthy aspect of reformulating the image of coexistence between children and the elderly (fewer children as compared to the number of seniors) is the issue of young people's attitudes toward those whose days of productive professional life are long behind them.

Hence, I call for taking a closer look at children's primary education, on which several hours are spent every day, and which, if carefully designed, can become not only a lesson at school, but, above all, a lesson in humanity and building a conscious society.

In September 2012 in Poland, the Ministry of Education introduced a new core curriculum for primary schools, grades IV-VI, which is the second stage of primary education. The new core curriculum is being implemented in all Polish schools and concerns all subjects. I decided to analyse the theme of old age in new Polish language textbooks. Being a Polish language teacher myself and therefore having the greatest number of hours with one particular group of pupils, I believe that I am able to use the content of literature to shape children's social attitudes and to humanise their learning. Therefore, I have analysed the available textbooks from the gerontological perspective and the general conclusions are as follows: most of the sixteen Ministry-approved textbooks raise the issues of aging or of the relationships with grandparents at the minimum level (it is limited to a short poem to celebrate the Grandparents' Day) or do not raise such issues at all. Such curriculum assumptions clearly exclude the topic of old age from classroom discussion, leaving it to the good will of a teacher. What is also worrying is the fact that in upper grades, this issue is not obligatory according to the curriculum, while this is the age when students become more willing to discuss social issues, are able to express their opinions on the observed phenomena, and can objectively and subjectively refer to the questions they are asked. Their emotional sensitivity allows them to specify their relationship to someone else. Not only do they know how to express their own judgments, but they can support them with reasonable arguments. Hence, my observation is that it is at this level of education when the attitudes of young people towards the ageing society can be shaped safely and effectively.

I will take the liberty of presenting a few instructions and tasks which I have found in the Polish language textbooks for elementary school, approved by the ministerial sieve:

- "This is how my great-great-grandmother and my great-great-grandfather had met... ." Let your imagination run wild and invent fairy-tale origins of your own family (Łuczak and Murdzek; 2012);
- Talk about what you imagine an ideal grandfather is like (Łuczak and Murdzek; 2012);
- Explain what the grandfather wanted to teach his grandson under the cherry tree? (Łuczak and Murdzek; 2012);
- What good things do you think grandchildren can learn from their grandparents? Write your answer in a few sentences (Łuczak and Murdzek; 2012);
- Talk about for what children value adults the most (Łuczak and Murdzek; 2012);

- Fragments of the book "Grandma Bridget and her crazy trip around Kraków" (Łuczak and Murdzek; 2012);
- Based on the poem, explain what the role of a grandfather in a child's life should be (Derlukiewicz; 2012);
- Write down the things you associate with your grandmother. Explain why (Derlukiewicz; 2012);
- A task which concerns the content of a poem: Why was the grandma longing for a letter from her grandson? Why has she read it a hundred times? (Derlukiewicz; 2012);
- Choose the words which best describe an elderly lady (Derlukiewicz; 2012);
- In groups, work on a list of things in which you can help your grandmother (Składanek; 2012).

Above, I presented the most interesting exercises which include the topic of old age in the curriculum of the Polish language education. They were all subjectively selected by me. To my great amazement, I have to admit that there are new books which do not raise this issue in their sets of tasks at all. There are also those which only briefly mention a grandmother and grandfather in the context of their holiday, celebrated in Poland on 21 and 22 January. Lack of innovation strengthens the literary clichés which present adults as:

- Sages who accept their old age with humility and awareness of its consequences;
- Old people who cannot find their place in the new reality, feeling sorrow over the lost youth;
- Old people who make mistakes and do not go beyond the framework of social clichés and norms;
- Old people who overcome their individual weaknesses, believe in their latent abilities, wait for love and joy (Grabowska; 2004).

I am very happy to say that there are also books which talk about old age, offering engaging literary texts and inspiring tasks. Sadly, they are in the minority.

Concluding my demands and considering all the formally approved materials to work with children which I managed to collect, I wish to point out clearly that apart from the socio-economic regulations concerning senior citizens, in order to take care of the social welfare, an effort must be made to educate the youngest citizens and raise them "into the old age."

One stereotype which is still present is showing an elderly person as someone waiting for death, who, deprived of their dreams, is a nuisance to the environment. Additionally, mass media perpetuate the image of an old man whose only passion is to search for the best false teeth adhesive, the best orthopaedist, or the best physical therapist. However, it should be kept in mind that seniors are worthy of special attention, for they possess the richest life experience and knowledge. *The wisdom achieved during the development of an adult person is of transcendent nature. In contrast to practical knowledge, which is based on common sense and experience, transcendent wisdom is directed more towards the inside of a man (...)* *The best sign of having reached transcendent wisdom is no fear of death* (Łosiewicz; 2004). Each period of old age is unique and individual. It is time that sets its limits. For some, time marches inexorably on; for others, it stops in one place so that they can enjoy the here and now. According to A. Kamiński, who is the Polish precursor of the issue of creative old age, raising someone to understand old age means helping them to acquire interests and aspirations as well as skills and habits which, when retirement comes, will assist them in implementing a lifestyle conducive to the prolongation of youth and full of rewarding activities (Ilnicka; 2006). As for my deliberations, I believe the

young generation should be involved in the area of their grandparents' activities: hobbies, leisure activities, or social and cultural initiatives. Old age does not have to be tantamount to saying idle goodbye to the previous lifestyle. When properly organised, it can contribute to the fulfilment of a yet unfulfilled dream, to meeting new people, or to opening up to the needs of others. Emotional strengthening of the elderly can be multidirectional; special attention, however, should be paid to their relationships with their grandchildren.

A grandchildren-grandparents relationship brings benefits to both sides. Children feel recognised and taken care of, while the elderly can engage in a retrospective of their life and indicate life's meaning to the younger generation. Despite the modern model of a young family, where parents usually live away from grandparents, a contact with the latter is one of the first contacts a child makes after it is born. In this respect, a special role is played by grandmothers, who share the care of a new-born. Thanks to their maternal instinct, they support young mothers. It is usually later when grandparents become actively involved in childcare. Grandma and grandpa teach a child basic activities, thanks to which a toddler becomes increasingly independent. They talk to a child and teach him how to speak, think, memorise, etc. Hence, it is important that grandparents narrate fairy tales that they know to their grandchildren. Grandparents, thanks to their patience and bigger time availability, become comforters, guardians, and confidants of children's worries, because a young man must trust the person he confides in. He must be certain that the older, wiser person will understand him. A generational difference between a child, a parent, and a grandparent allows for the full process of bonding to occur. The patience grandparents have for their grandchildren is bigger than that which they had for their children. Particularly, during the period of rebellious adolescence, a young man rejects the opinion of his parents in order to find his own way and a role model. He often finds him in the person of the family's patriarch. Without parental overprotectiveness and with an adequate degree of trust towards the child, a grandparent can be a source of approval and praise. He can be the one in whom the child will find interpersonal warmth and the simple ability to spend time together, with no requirements and need of commitment. In 1998, Helen Bee identified three types of grandparents, based on the nature and context of an intergenerational relationship:

1. Distant relatives – they keep their emotional distance towards grandchildren, treating them as a burden; they rarely meet with them and do not help the parents to take care of them;
2. Caregivers – they offer children a place which is their second home; they are emotionally attached to them; they actively support their upbringing; sometimes they take over the childcare;
3. Companions – they care about their grandchildren; the relationship is close, warm, and regular; there are frequent visits; their children's children become their pride and joy (Brzezińska; 2001).

Each relationship of a child with their beloved grandmother and grandfather plays a vital role in his life. The attitude a person nurtures towards the elderly in his adult life also derives from childhood memories, in which grandparents can play a positive or a negative role. It is worth pointing it out both to grandparents, for whom having a successful relationship with their children gives them a sense of being needed and useful, and to parents, whose children have a chance to create healthy, positive social references. *Intergenerational transmission forms a hierarchy of values, which from now on will be a reference point when evaluating the social situations one finds himself to be in* (Falkowska; 2002). On the other hand, T. Gadacz, in the text entitled *Wychowanie jako spotkanie osób* (~Upbringing as the meeting between people), emphasises that there should be two perspectives on upbringing: upbringing in the context of functioning, and upbringing in the context of an individual. Both of these approaches may be a reference point for a relationship between the oldest and the youngest family members. *The first perspective concerns upbringing in accordance with the generally accepted models of life*

which are distinctive of a given ideology or social system. The second perspective is a meeting of two people – the master and the student, which opens the horizon of values by which one becomes a man regardless of an ideology or social system (Małecka; 1997). Some people say that if there weren't grandmothers and grandfathers, we would have to invent them. Seniors are often an invaluable source of support, help, and advice. Unlike parents, grandparents can spoil their grandchildren, fulfil their desires, and indulge their childish whims. It is an absolutely natural process; therefore, I believe that protesting against such behaviours of grandparents is unfounded. As long as children do not exceed the limits of respect for their grandparents, there is no unhealthy spoiling. Instead, we can talk about building beautiful childhood memories and the sense of usefulness in the life of an elderly man. Thanks to such a laid-back relationship, the two extreme generations simply love spending time together. They can derive pleasure from the very fact of being in each other's company. This is as honest and simple as that. And this is possible when children are open and truthful, and the grandparents are genuine and experienced. Unadulterated in their experience, seniors help children understand the hierarchy of moral values and support their scientific and social undertakings. With their wisdom, they lead the youngest ones through the paths of earthly existence. *Grandparents are ahead of their grandchildren on the roads of life. It is from them that young people can learn how to deal with difficulties, a disease, or other limitations; how to accept natural changes connected to the aging process (...)* It is thanks to great-grandparents and grandparents that we gain a sense of belonging, so important for young people who are only starting to shape their identity (Brzezińska and Appelt; 2006). The pace of life constantly changes, but so does the quality of leisure time. Local traditions and customs are dying down. Then, it often happens that a grandma and grandpa are left out, pushed away, their role is reduced. Meanwhile, it is the grandparents who create the atmosphere of holidays and family celebrations, which I believe should be particularly emphasised by schools. They are willing to talk about their lives, about their distant and close family. They teach others, so that the increasingly mainstream detraditionalisation does not dominate Polish households. *You could say that such relationships provide an opportunity to maintain a dynamic balance between volatility, better tackled by young people, and stability or continuity, the source of which is in the elderly* (Brzezińska and Appelt; 2006).

The meetings of children and seniors should be a link within which the socio-cultural knowledge is expanded and a separate, unique view of the world is built. School education, its new curriculums, and modern textbooks should include the content which educates a child to be able to engage in an intergenerational dialogue, and to create a contemporary, authentic image of an elderly man. Combined with the skills of a teacher, multiple methodological strategies may promote the importance of seniors in the stage of a child's development. Love that is gentle and derives from devotion alleviates children's fears and senile melancholy. The child-senior interaction may lay down the general shape of social references. *Seniors may have a significant, positive impact on a child's development, and that depends (...) on normal, lively and intensive contacts of seniors with children and on their mental and physical abilities (...)* Grandparents play a socialising and upbringing role in a child's education; they show the child how the society functions (Andrzejewska; 2006). Therefore, there is no denying that we should read texts about old age with our students. We should teach them about literary seniors (both text characters and authors). Let us not be afraid to talk about old age cheerfully. *During Polish language classes today, teachers are increasingly promoting the model of older generation as a group of wise guides, empathic counsellors (...)* Seniors can be considered the real masters of life (Podemska-Kaluża; 2010). It is possible that, thanks to letter-writing tasks in class, some of our students will write the most genuine letter to their grandmas. Perhaps one of our students will start to help her ailing elderly neighbour. Maybe one day, when grey strands of hair appear on our heads too, we will be helped by a good young man. We should think about our senior years now in order to prepare our children for it. The hedonism of youth gives way to the peace of mind and composure

of old age. Such educational vision is a challenge. It has a demanding goal, but the one that gives hope for a happy old age for future generations. Let's make sure we educate sensitive, socialised children who will complement our human happiness.

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4th International Conference on New Horizons in Education

New possibilities of mobile ICT in education at low operating costs

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Abstract

This article deals with new possibilities of teaching course which is focused on new media. The course will be partly realized during teaching outdoors, therefore it will be necessary to ensure the mobility of users were using of modern ICT (Information and Communication Technologies). For teaching and using new media is necessary to ensure mobile devices (tablet, smartphone, etc.) and mobile internet. Mobile internet is required for connection with main new media. The actual problem is big costs of mobile internet for a lot of students. Authors vision is to provide mobile internet for more mobile devices at very low operating costs which will not encumber the budget of the university. The suitable solution is to use so-called tethering, which is a method of sharing a single mobile internet connection usually within local wireless network for more students. The benefit of this paper is innovation through the reduction of operating costs for teaching outdoor the course while maintaining the mobility, and the use of mobile ICT when working with new media in education.

Keywords: tethering; new media, education; mobile devices; ICT; mobile internet

1. Introduction to new media and mobile communication

Statistical data about today's state of the internet connection access according to source (Accenture, 2012) shows that 69 percents of users around the world uses mobile internet. According to source (ITU, 2013) the development between 2007-2013 clearly shows that it is a long-term trend with permanent significantly growing character. The ability of mobility is therefore crucial and still more and more required of modern internet connection. ICT courses within education organizations should reflected on this fact and provide conditions for students to enable them to learn how to use ICT which comply with the trend of mobility. This goal is pursued by a new course at the University of Pardubice (Czech Republic) - Introduction to new media and communication. Apart from this the course aims to introduce students to the area of new media that are connected with mobile ICT so that using mobile ICT was not as end in itself. In order to put theory into practice part of the course will be held outdoors. Means of ICT chosen for the course are mobile devices (tablet and smartphone) and also mobile internet using mobile and wireless data technologies.

The main aim of this article is to provide description of possibilities of teaching mobile ICT and maintaining low costs at the same time with regard to scarce sources in academic field. To achieve the goal it is necessary to solve the problem of very high costs of mobile internet connections for large amount of students that attend the course. Authors of this article aim to provide internet for mobile devices for all students that attend the course

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and maintain low operational costs so that the university's budget will not be encumbered. A possible solution examined by authors of this article could be using a so-called tethering, a method of sharing mobile internet connection through WiFi network for students of the course. The benefit in this case would be an innovation through low operational costs while lecturing the course outdoors and maintaining the mobility of the Internet connection when using mobile ICT to learn about new media.

1.1. New media

Nowadays Media and communication greatly influence both social and professional life and belong to the dynamically developing field that affects many sectors (Jiráček & Köpplová, 2003). The course Introduction to New Media and Communication responds to this trend and offers students information on how present media works, what kind of means they use and how they affect the society. The aim of this course is to present students the new media, methods and communication trends with use of current information and communication technologies, which will be subsequently used in practice, for which the University is preparing. New media is one of the frequently cited term today, however, fixed definition of this term does not currently exist. New media are understood at several levels then. In general, new media can be characterized as follows (Pavliček, 2010):

- promote communication or feedback,
- are based on the digital platform,
- are interactive,
- use of computing power.

The course Introduction to New Media and Communication presents students definitions, history and significance of current new media and mass media and explain what role ICT represents in their support. New media influence communication at all levels and thus have a significant impact on society and market. The current society is in the network age (Pokorný, 2002) in which Internet has become a phenomenon that is accompanied by a trend of mobility in this time.

All students (of University of Pardubice) from last year of information and communication technologies master's program were asked the questions in the questionnaire and based on their answers authors found out, that despite the globalization of the media, these students have no clear awareness about the term New media and only some of them worked with the mobile devices using new media (The questionnaire results: Only 45% of students correctly oriented in the definition of new media and only 24% worked with mobile tablet devices. 82% of students worked with smartphones. However, 98% of students used social or geo-social networks and 73% of them worked with mobile internet.).

The course Introduction to New media and Communication enable them to complete these deficiencies and prepare them to practice in which they these devices and new media will meet.

1.2. Required technologic base for tethering

Technological base used for education purposes should reflect trends of today's means of ICT used in practice. The ability of mobility and wireless communication constitute a potential for the future of mobile ICT. Following technologies were specified as necessary for the needs of the course:

- Mobile multipurpose devices.
- Location and positioning technologies GPS, Gyroscope, Accelerometer, Electronic compass or QR-codes.
- Wireless data technologies WiFi, Bluetooth, NFC.
- Mobile data technologies of generation 3G (CDMA, UMTS, HSUPA/HSDPA).

1.2.1. Mobile devices

The market of mobile devices has been very dynamic in recent years (see Fig. 1) which is why only those ICT devices should be chosen that fulfill the ability of mobility and are sufficiently spread and have a growing trend of sales in the market of last years. Figure 1 shows that these requirements are satisfied by tablets and that is only why they were purchased for the lecturer and students of the course. The market of mobile operating systems is very heterogeneous these days and therefore only devices with operating systems with a growing trend (see Fig. 2) in the market should be chosen when contemplating a suitable platform for education. Efficient support through available applications and therefore a potential for the future should also be taken into consideration. Mobile operating systems Android and Windows rank among devices with these characteristics. These operating systems are the only that have a growing curve in the market and for which there are also important online shops for mobile applications (Google Play and Microsoft Store). On the basis of these requirements a tablet with both of these operating systems (in their actual versions Android 4 and Windows 8) were purchased.

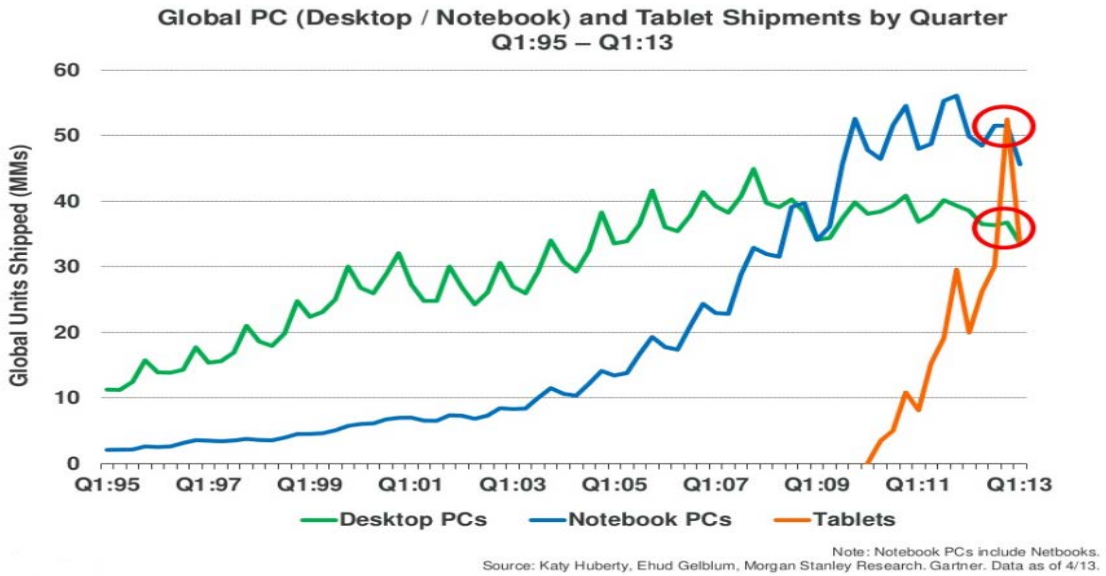


Fig. 1: Desktop/Notebook/Tablet Shipments by Quarter Q1:1995-Q1:2013 (Meeker & Wu, 2013)

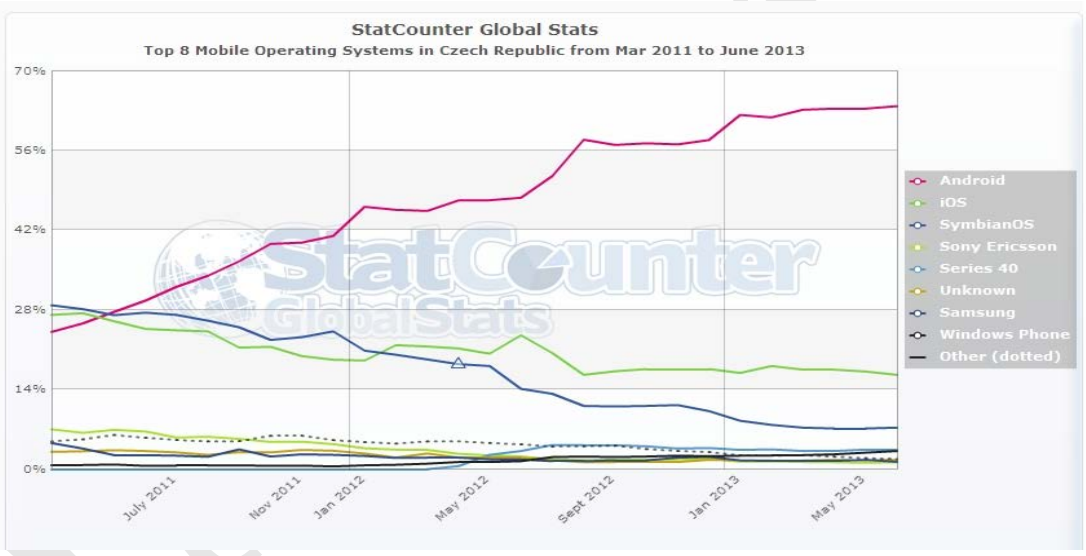


Fig. 2: Global Statistics of Mobile Operating Systems in Czech Republic (StatCounter, 2013)

1.2.2. Mobile connection and tethering (mobile internet, tethering)

Mobile connection for the needs of the course is provided by mobile and wireless data technologies. These two technologies differ in the ability of mobility (e. g WiFi technology is usually used as stationary).

Tethering is a method that enables sharing mobile connection to the Internet within network of several devices (see Fig. 3). In the case of this course it is considered to share a mobile 3G connection via hotspot based on WiFi or Bluetooth technology. Each one of these technologies (according to its specification) offers a different transmission speed. In order to put these technologies in compliance it is necessary to level out their parameters of maximal transmission speed. Table 1 shows that the throughput of WiFi 802.11b technology is sufficient for speed limits of mobile data technology UMTS. WiFi 802.11g technology at least should be used in order to prevent the degradation of the HSPA technology's transmission speed and WiFi 802.11n should be ideally used for the LTE technology. There are several ways of arranging tethering:

- Tethering natively supported by mobile operating system (supported by Android 4 but not by Windows 8. It is expected to be supported since Windows 8.1).
- Tethering run by a third side's software (e. g. Connectify in the case of Windows).

Table 1: Parameters of mobile and wireless data technologies (Kysela, 2012).

Technology	Downlink speed	Uplink speed
3G – UMTS	2 mbps	2 mbps
3G – HSPA	42 mbps	7.2 mbps
3G – LTE	100 mbps	50 mbps
WiFi – 802.11b	11 mbps	11 mbps
WiFi – 802.11g	54 mbps	54 mbps
WiFi – 802.11n	150 mbps	150 mbps
Bluetooth 1.2	721 kbps	721 kbps
Bluetooth 2.0	3 mbps	3 mbps
Bluetooth 3.0	24 mbps	24 mbps
Bluetooth 4.0	24 mbps	24 mbps

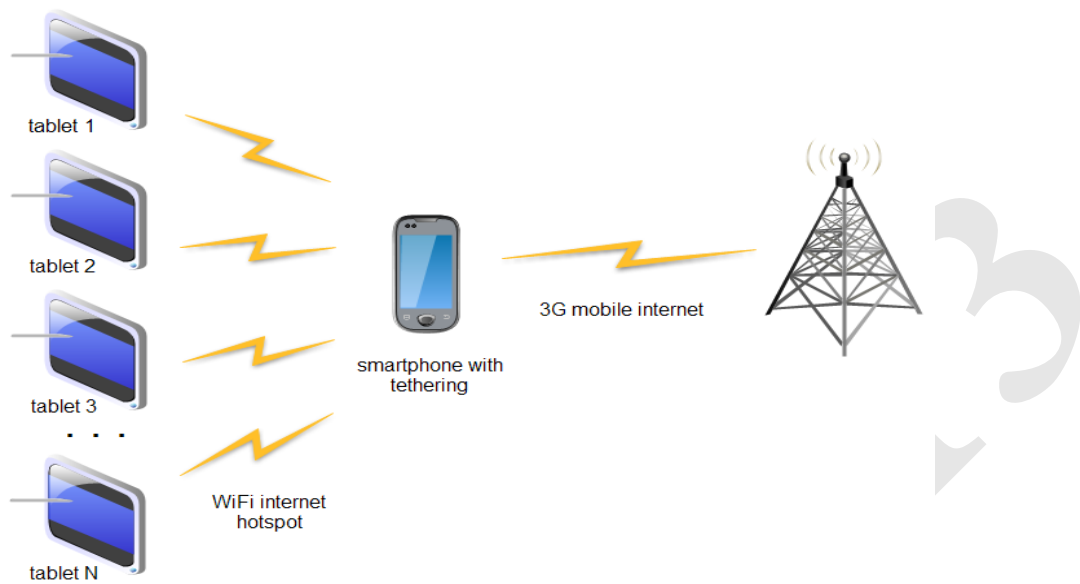


Fig. 3: Sharing of mobile internet connection by method of tethering via WiFi

2. Teaching new media outdoors

The course Introduction to New Media and Communication apart from lectures also contains tutorials in which students will work with new mobile devices and other ICT means in practice, both indoors and outdoors. New media are increasingly connected with mobility and therefore mobile devices such as tablet or smartphone on different platforms (Windows, Android, iOS, Symbian, BlackBerry OS, etc.) are used.

Within the course mobile devices like tablet with widespread platforms in their current versions of Android 4 and Windows 8 are available. During tutorials students get to know the functionality of multipurpose mobile devices, with their characteristics and usability for new media and modern mobile and wireless communication. They learn specifics of technologies (location and positioning, wireless and mobile data) supported in current mobile devices which students can use in their future practice. Lecturer further explains usability of mobile data technology infrastructure and the possibility of sharing a mobile Internet connection via tethering method by creating of own mobile WiFi hotspot outdoors. These tutorials demonstrate use of multipurpose mobile devices and mobile or wireless data technologies to access the Internet for work with mobile applications of new media. Tutorials allow students practical use of technologies supported in multipurpose mobile devices. Based on these technologies students can use mobile applications of new media:

- Wiki systems.
- Social networks.
- Photo and video sharing.
- Mobile applications of location based services (geosocial networks, navigation and maps with additional local information, augmented reality etc.).

2.1. New possibilities of mobile ICT in education at low operating costs

Tutorials held outdoors demonstrate students the possibilities of mobile internet and its subsequent use. Selected tethering is used as a method of sharing one connection to a mobile Internet for more mobile devices via WiFi or Bluetooth technology with the advantage of reduced costs. WiFi technology usually works as a stationary. Tethering, running on mobile device with sharing of the mobile connection via WiFi hotspot, adds WiFi a characteristic that the mobility at this technology is ensured.

For using of the mobile internet in teaching outdoors it was necessary to choose between the available offers of mobile connection providers. Seven mobile or virtual operators exist in the Czech Republic in June 2013, who offer these services (virtual operators don't have own mobile network infrastructure, but they rent it from mobile operators). Considering that one tutorial has 20 students, it was necessary to choose such a service that can provide required parameters of a mobile connection. The authors have defined parameter values as follows:

- Mobile data technologies coverage at required territory.
- Mobile data technologies, at least third generation (3G).
- FUP (Fair User Policy limits data traffic of internet connection) higher than 80 MB/day.
- Lowest possible price.
- Mobile services without subscription.

For use of tethering between more users the tariff with FUP of at least 10 GB per month would correspond the most. At all providers in the Czech Republic the FUP is mediated with a subscription for at least one year and minimally monthly costs €19.36. Then it would cost the University at least €232.32 per year per person.

Given that the course lasts one semester per year it is not necessary to use annual tariff and it is sufficient to get a prepaid service without subscription. Mobile and virtual operators offer various possibilities of mobile internet with different level of FUP and price. There are three official virtual mobile operators on the prepaid service market now: MOBIL.CZ, Bleskmobil and Tesco Mobile and also three major mobile operators Telefónica O2, T-Mobile and Vodafone. The mobile operator U:fon offers a mobile internet only through mobile data technology CDMA, for which no compatible devices are available within this course. All operators met the first two conditions, namely coverage with mobile data technologies in the desired territory (Pardubice city) and availability of mobile data technology at least third generation (3G) in required territory (see fig. 4, 5, 6).

After all offers had been evaluated, the best offer from the company Telefónica O2 was chosen. This company offers mobile internet for three months for the price of €38.76 per connection with the option of using 3 GB of data per month with limited FUP 100 MB/day (see Table 2). This ensures that students can not exhaust data limit during one tutorial other students, who have tutorials in other days. The course Introduction to new media and communication includes in fact one lecture and 3-4 tutorials during a week. Company Vodafone provides an interesting offer as well. It offers FUP 500 MB for two days for the price of €2.93. This offer would be only suitable while short-term mobile internet use (e.g. a week to a month). Other operators have not offered mobile internet in the required parameters yet.

The University will save not only for annual tariff package, which would be activated throughout the year, but mainly for another twenty connections for students, which will be saved by mentioned tethering due to mobile internet sharing via WiFi technology. In total the University will save up twenty times the amount due to the method of tethering, which is €775.20 per semester.

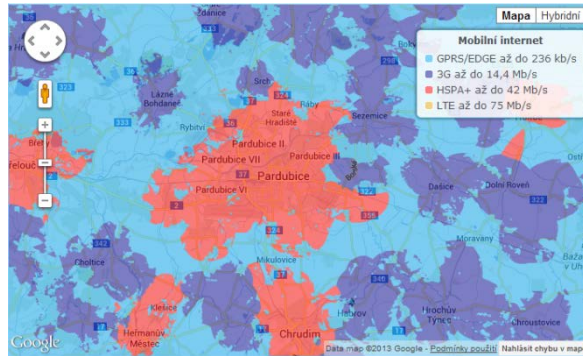


Fig. 4: The detail maps of coverage of mobile internet in Pardubice (Czech Republic). Source: www.o2.cz

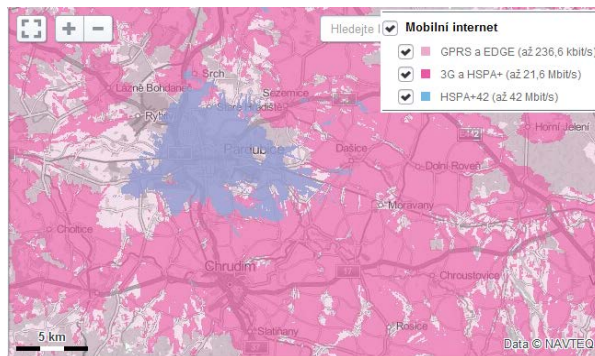


Fig. 5: The detail maps of coverage of mobile internet in Pardubice (Czech Republic). Source: www.t-mobile.cz

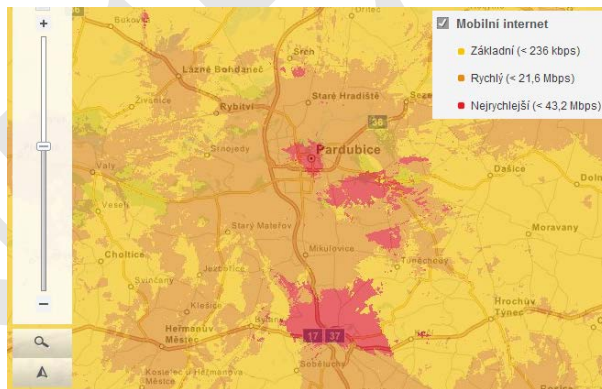


Fig. 6: The detail maps of coverage of mobile internet in Pardubice (Czech Republic). Source: www.vodafone.cz

Table 2.: Comparison of prepaid services without subscription. www.o2.cz, www.vodafone.cz, www.t-mobile.cz, www.bleskmobil.cz, www.mobil.cz, www.ufon.cz, www.tescomobile.cz. Access date 06.06.2013. Actual exchange rate of Euro - 25,775 Czech crowns: validly for 06.06.2013. Source: www.cnb.cz

Mobile operation	Mobile connection for one day	Mobile connection for two day	Mobile connection for one week	Mobile connection for one month
02	100 MB - 0,43 € (subscription for 3 months - 38,76 €) 100 MB - 0,93 €(v subscription for 1 month - 27,12 €)	-	37,50 MB - 1,94 € 250 MB - 3,49 €	3 GB - 12,92 € (subscription for 3 months - 38,76 €) 3 GB - 27,12 €
T-mobile	25 MB - 0,93 €	-	40 MB - 1,51 €	-
Vodafone	25 MB - 0,98 €	500 MB - 2,93 €	60MB - 1,91 €	-
MOBIL.CZ	-	-	-	200 MB - 27,76 €
Bleskmobil	50 MB - 0,78 €	-	-	-
Tesco mobile	50 MB - 0,78 €	-	-	-
U:fon	-	-	-	--

3. Conclusion

The main aim of this article was to describe the possibility of teaching mobile ICT on university with maintaining low costs at the same time with regard to scarce sources in academic field. To achieve the goal it was necessary to solve the problem of actual very high costs of mobile internet connections for large amount of students that attend the course. Authors of this article aim to provide internet for mobile devices for all students that attend the course and maintain low operational costs so that the university's budget won't be encumbered. A possible solution examined by authors of this article was using tethering. This innovative solution has brought a significant reduction in operating costs during outdoor training of course while maintaining mobility and required quality of internet connection for all students in the course. Reducing operating costs of University thanks to the use of tethering method was in the case of tutorial course with 20 students, a total of twenty times, making a total savings of €775.20 per semester.

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4th International Conference on New Horizons in Education

Novel trends in physiology towards individualized veterinarian education at the University Of Veterinary And Pharmaceutical Sciences Brno

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Abstract

Physiology is a very dynamic discipline and also physiology education should be flexible and creative. Moreover, specific needs of different faculties and individual requests of students should be taken into account. Customized materials in printed and electronic forms allowing for selecting and puzzling of knowledge seem extremely welcome. The presented project “Creative Approaches in Physiology Classes – Integrated Educative Programs” aims to tackle the problem and provide novel study materials for veterinary students customized for the Faculty of Veterinary Medicine at UVPS Brno (Czech Republic).

Keywords: physiology; practical works; veterinarian education

1. Main text

Physiology represents a dynamic discipline closely connected with medicine. As such it has a privilege of Nobel Prizes being annually awarded for important discoveries. To keep up with recent knowledge, education of physiology requests creative approaches. Moreover, physiology is a very broad discipline and therefore, selected chapters are emphasized at different faculties with respect to their specific needs.

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Fig. 1. Project logo

University of Veterinary and Pharmaceutical Sciences (UVPS) Brno thanks to its Faculty of Veterinary Medicine is the only university within the Czech Republic providing veterinary education. Physiology is included among pre-clinical disciplines forming a background for further clinical education. Recently, the curriculum at the University has been innovated to respect overall current trends in veterinary education within Europe. The changes stem from current education needs for working opportunities of the graduated veterinarians. Due to increasing stress on clinical disciplines without an overload handicap for students, pre-clinical disciplines have been rescheduled. The students should pass their exams in anatomy already in the close of the first year and there is a semester overlap with histology along with physiology. To fit all these critical disciplines into the hour funds, the shortage in direct education based on student – teacher contact has been proposed. However the amount and content of knowledge must be maintained. To achieve these slightly controversial goals, indirect form of education (particularly self study) must be exploited. To make such approach effective, specific study materials must be provided for students. Specific study materials mean to be customized in several aspects. First, they must fulfill criteria of the university education thus providing the most recent knowledge. Second, they must be adapted for veterinarian students, thus working particularly with clinically important topics. And last but not least, they must be attractive for students to let them feel satisfied during studies. To tackle these aims, a project titled Creative Approaches in Physiology Classes – Integrated Educative Programs supported by the European funds (CZ.1.07/2.2.00/15.0252, Fig. 1) has started two years ago to be completed in 2014. The first step in the project was to get together specialists from different universities and research institutes to create a strong team and share expertise. To cover broader geographical region, the project gathers partners from the city of Brno and Olomouc, holding the oldest universities in Moravia (a historical part of the Czech Republic). The second step was to highlight essential issues for graduated students from the respective universities (including the UVPS) and to outline the customized materials. To cover both, theoretical and practical education, an important goal of the project is to connect knowledge directly with hands-on experience, which means a direct application of theory into practice. To work in the proposed modular way, several approaches must be applied for material preparation thus creating

presentations, text, pictures, figures, video-sequences and particularly their dynamic connections in interactive schemes along with protocols, interactive flowcharts, educative games, test of knowledge, glossaries etc. In the next step, the material must be tested in close cooperation with the students. Therefore, several pilot subprojects have been engaged to find the best way of topics presentation to students to build a solid background of physiology knowledge for their further learning particularly in pathological physiology and clinics. The last step will be the material finalization and its communication not only in printed but also in electronic versions.

In the latest academic year (2012/2013) the interest was focused on integration of theoretical and practical knowledge. The recent concept of physiology is based on the principle day-one skills modified for a week education (there is a maximum 20 students in each study group and more than 200 students to go through the course each week). The project proceeded according to recent syllabus of the discipline approved by the scientific board of the faculty and university. As in the new curriculum, practical program in physiology has been shortened, the project aims was adapted to this fact. In the first semester of the academic year, first creative materials were tested in the pilot project. The major chapters were: cellular physiology and application of modern approaches, such as organ explant cultures, physiology of blood and body fluids with a special focus on erythrocyte, leukocyte and thrombocyte complexes. First, the materials were prepared in a draft form and offered to students for self-study prior the practical course. The aim is to catch up the missing hour from shortened schedule by perfect preparation of students by studying of



Fig. 2. Physiology I - cover

methods and experimental design ahead the course. To see the level of understanding, two types of tests

were applied. Test of knowledge was for the teacher to check the degree of preparation and ability to connect knowledge from the lectures with the practical course. The questionnaire was a chance for students to express their opinion about the prepared material and suggestions for modulation. In the second step of the pilot projects, the tests were evaluated, materials modified accordingly, consulted with other experts and issued in the final form. The first book, Physiology I – practical courses by E. Matalova et al. (2013) (Fig. 2), was issued under ISBN 978-80-263-0351-0 in February 2013 and was thus ready for the first year students following the new curriculum starting physiology in the second semester of the year 2012/2013. Along with the paper form, electronic version of the textbook was open free on the website together with accompanying material such as quizzes, games, and other forms of interactive e-learning. To prepare the second part of the book in time, the pilot part of the project was running simultaneously in the second year classes. Here, the attention was paid to physiology of systems, particularly cardiovascular, respiratory, digestive, excretion, inner secretion (endocrine), motoric and nervous. The second textbook, Physiology II – practical courses is due to be printed in September 2013 to be distributed by the start of the new academic year (and second semester of physiology according to the new curriculum). By the end of the project, two complex textbooks for veterinary students focused on theoretical background of physiology are expected to fit with the practical protocols and the website (<http://kreativnifyziologie.upol.cz>, Fig. 3) containing plenty of diverse study materials to be selected based on the preference and needs of the students.

The screenshot displays the website interface for 'Kreativní fyziologie'. At the top, the title 'KREATIVNÍ FYZIOLOGIE' is written in large, colorful letters. Below it, a navigation menu lists: 'Domů', 'O projektu', 'Řešitelský tým', 'Studentské prezentace', 'Virtuální procházky', 'Fotogalerie', 'Výkladový slovník', and 'Pilotní výuka'. A 'FOTOGALERIE' section shows a photo of a person. The main content area includes a text block about the project's goals, a 'Publicita projektu (ppt)' section, and a 'Propagační leták' section with several flyer images. The footer contains logos for 'esf evropský sociální fond v ČR', 'EVROPSKÁ UNIE', 'MINISTERSTVO ŠKOLSTVÍ, MLÁDEŽE A TĚLOVÝCHOVY', 'OP Vzdělávání pro konkurenceschopnost', and 'UNIVERZITA PALACKÉHO V OLOMOUCI'.

Fig. 3. Project website

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Number relationships on students with mild mental retardation

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Abstract

The purpose of this study is to investigate the number relationships of students about “The More-The Same-The Less” concepts. The students with mild mental retardation are handicapped children who need special education and their ability in number relationships have been recognized according to concrete-representational abstract (CRA) instructional approach.

Qualitative research approach have been used in the study Case study design have been carried out. The study is planned by studying with one participant and it has been multiple case study by including a few similar students with mild mental retardation in the study. Three students with mild mental retardation from a special education school were attended to the research. The participants of the study were selected among the students with mild mental retardation according to predetermined prerequisite skills. In the research to determine the ability of students with mild mental retardation, “The More”, The Same“ and “The Less” concepts were used in concrete-representational-abstract instructional abstract. For collection data assessment sets containing number relationships were prepared for each level of CRA and Interview, content analysis and think aloud methods were used to collect data. In the analysis of data, techniques of phenomenography were used in order to reach the concepts and relationships that can explain data related to sub-problems. According to the research’s findings, students were recognized as inadequate in number relationships and also suggestions to teachers at the end.

Key Words: Special Education, Mild Mental Reterdation, Number Relationships

1. Introduction

Mathematics skills, while very important prior condition for the students with intellectual disabilities to proceed in academic life, daily life, vocational field, is the leading skill which students with intellectual disabilities have difficulty to understand (Kroesbergen & Van Luit, 2003; Perie et al.,2005). This problem is multiplied by the factors. These factors are especially about mathematics skills which requires cognitive skills, difficulties in literacy, not allowing enough time teaching concepts, not providing students with enough opportunities and low motivation of the students (Vaughn et al., 2003).

Along with all these reasons, one of the reasons of not being able to gather mathematics skills for the students with intellectual disabilities is helix structure of mathematics. In other words in mathematics,

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acquisition of each skill depends on other skills that are prerequisite. From this perspective, especially the acquisition of the concept of number is one of the most important prerequisite skills for students to be successful in mathematics. National Council of Mathematics (2000) also proves that: “All the mathematics proposed for prekindergarten through grade 12 is strongly grounded in numbers”. From research in literature, studying with students in numerical concept show that students gaining numerical concepts are recognized more successful in place value, numbers operation, computation, time telling and problem solving skills (Case & Griffin, 1990; Fischer, 1990; Griffin, Case, & Siegler, 1992; Kamii & Dominick, 1997; Resnick, Lesgold, & Bill, 1990).

Numerical concepts are very abstract and become more complex for students (Fuson, 1988) and conceptually understanding of numbers teachers based on three phase: Counting, Number Relationships and Numeral Writing & Recognition. (Van de Walle, 2007). Teachers should regard these three phase in the process of acquisition of numbers. In these phases students with mental retardation having counting and numeral writing skills; have difficulties in number relationships consists of cognitive process. Especially they have difficulties in acquisition the provision of the numbers containing multiplicity. So conceptually understanding of number relationships should teach to the students with evidence based strategies such as concrete to abstract models in the early years of life (Jung et al., 2013). However number relationships take part in early childhood academic skills in literature, should teach to the students with mild mental retardation regardless of their age. There are four types of number relationships children need to learn. These are (Van de Walle, 2007):

1. *Spatial Relationships*: Children need to recognize visual patterns, arrange the number of objects or organize objects into pairs visually without counting them. Children can develop a better understanding by looking at spatial relationships.
2. *One or Two More, One and Two Less*: Understanding that 6 is one more than 5 and two more than 7 leads to a better understanding of the basic facts students are required to memorize by 2nd grade.
3. *Benchmarks Of 5 and 10*: The numbers 5 and 10 are important to understand because they are so important in the base 10 system. Children need to understand how other numbers are related to 5 and 10, such as “8 is 2 less than 10, so $8 + 1$ is less than 10.”
4. *Part-Part-Whole Relationships*: Children need to recognize that numbers can be thought of as a whole which is made up of parts. For example, the number 7 can be made up of different parts, such as 3 and 4 or 5 and 2. Part-whole understanding leads to improved understanding of all mathematical operations.

Also according to Baroody (1987), for conceptually understanding of number relationships students need to develop three features. These are; Subitizing, Parts-Whole Relationships and More-and Less Relationships. Subitizing refers to the process of instantly seeing a number without counting like Walle (2007)’s spatial relationships. Teachers should make lots of concrete activities with students with mental retardation in subitizing process. But sometimes they aren’t able to know the real sequence of counting words represents the total quantity of a collection (Fuson, 1988). So the only subitizing process isn’t not enough for number relationships and teachers should organize Parts-Whole Relationships activities. In Parts-Whole Relationships students divides the whole into two parts by eyes and they add the part on the other. But they may have difficulties to understand explicitly the logical relationships. So teachers should organize an appropriate activity that connects missing addends and initial concepts of subtraction involves counting out items and then having a child hide some of them under a thing. And also they should encourage children to see all possible parts-whole compositions for a given number (Jung, 2011). The last feature of number relationships is More-and Less Relationships. It consists of more, less, and the same phases and it’s accepted as successful way in helping children develop the overall concept of number (Van de Walle, 2007). In this feature organizing a pair of collections with different quantities, students able to judge collections as “more”, “less” and “the same” for whether they understand the multiplicity and the symbol of numbers’ quantity.

From researches; Baroody (2000), determine that students aren't be able to understand parts-whole relationships will have difficulty in addition, subtraction, and other mathematics problems (Jung, 2011). Also Fischer (1990) recognized that students have this feature are more successful in basic number concepts, addition and subtraction problem solving, and place value. While there are lots of findings to acquire the conceptual understanding of number relationships and many guidelines for students who need conceptual understanding of number relationships, number relationships aren't cared about by teachers in special education. Usually teachers access numbers of operations after students begin to count and recognize the symbol of numbers. However teachers suppose that students who count and make operations are able to do these features (Jung, 2011), they should spend more time in these features before accessing the acquisition of numbers operation and they should place continuous assessment processes in sessions.

The aim of this research is to determine the ability of students with mild mental retardation in number relationships. For this reason questions below are sought to be answered:

1. How is the ability of students with mild mental retardation in number relationships in concrete level?
2. How is the ability of students with mild mental retardation in number relationships in representational level?
3. How is the ability of students with mild mental retardation in number relationships in abstract level?

2. Method

In this research, qualitative research approach is used and the research is designed as a case study.

2.1. Participants

Three students, 2 boy and a girl, with mild mental retardation have attended the research who were selected according to their prerequisite skills. Prerequisite skills were reading & writing numbers and counting. Also they could do addition and subtraction operations individually. They were also volunteers and have taken permission by parents. In the research participants called as their imaginary names Ali, zeynep and Mehmet.

2.2. Data collection

In this research assessment sessions were designed as parallel with the instructional guidelines of Van De Walle (2007). To determine the ability of the students in number relationships, assessment sessions are designed according to "More", "The Less" and "The Same" concepts of number relationships and also they were represented according to Concrete-Representational-Abstract (CRA) instructional approach. In assessment sessions 10 different number of sets were represented to each participant according to each level of CRA.

Figure 1. The materials used in assessment session



Concrete Level

Representational Level

Abstract Level

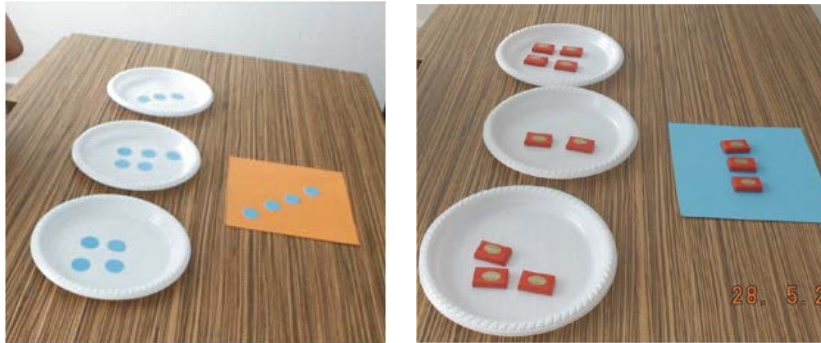
The assessment sets of number relationships concept were given in Fig. 1. In number of sets, a target number in the above and three different numbers in the below were took place and expected to answer the questions (Which one is the same?, Which one is the less? and Which one is more?) correctly by the participants. In the concrete level chocolate packets were used to represent the numbers; coloured circles were used in the representational level and also symbol of numbers were used in abstract level CRA. In abstract level strips drawn by pencil were used as semi abstract target number.

In the research 10 different directive sets were used to determine the ability of number relationships. In the sets five of them were prepared consecutively (like 4-5-6) and given randomly. The other five of them were prepared in twos (like 3-5-7) and given also randomly to each students in each level. 10 different assessment sets were used in each three level of CRA and each concept of “The More, The Same, The less”. Assessment sets were given in Table 1.

Table 1. Assessment Sets

Level	Patterns	1	2	3	4	5	6	7	8	9	10
CRA	Target	3	4	5	6	7	4	8	5	6	7
	Given	2-4-3	4-5-3	6-4-5	6-5-7	7-6-8	6-4-2	9-6-8	3-7-5	6-4-8	7-5-9

In these sets consists of multiplicity, target number was represented with different patterns from given numbers to avoid memorization and determine how participants compare the sets.

Figure 2. Examples Of Different Patterns

In the assessment sessions reinforcements weren't used for the participants and also no feedbacks were used response to their answers but reinforcements were allowed by the researchers when the sessions completed before the beginning other level.

2.2. Data analysis

All assessment sessions were recorded by video camera and after completing the research, researchers watched records and redacted to the table. Also researchers observed the students how they do the number of sets. Finally datas were analysed by using content analysis method according to the research questions.

3. Findings

3.1. The ability of students with mild mental retardation in number relationships in concrete level

In the first sub-question it was sought to find an answer to the question "How is the ability of students with mild mental retardation in number relationships in representational level?". When the results of the study were considered, the statement of the three of the participant students were found as follows.

Ali was able to count the concrete objects given to him correctly through recognizing by touching. When he was given multiplicity of objects around 2, 3 or 4, Ali can easily show the plate with the amount of the same, the less and the more multiplicity (even if they were given in successive order or not). However, when the amount of the multiplicity was increased, even if they were given in regular pattern, he sometimes counted the number of the multiplicity. That was, he could make mistakes like missing the order, recounting the ones that he already counted or miscounting the objects.

When the objects were given randomly without any pattern, he has difficulty in counting them correctly. Even more, he mostly fails to count correctly. Another interesting thing with Ali was that when he was required to show the plate with the less and the more amounts, he feels a need for recounting them each time even if he was able to recognize the one with the less visually. When he was asked to show the plate with the same one, even if he can primarily count the same one randomly, he cannot decide on the other plates before counting them. This was because Ali feels a need to recount the plate, forgetting all the time that he has already counted.

Zeynep can accomplish counting correctly by touching each of the given objects. However, she can sometimes make mistakes while subitizing without touching them. She was required to compare the target multiplicity provided by the researcher in the other plates. Zeynep was able to determine the multiplicity through counting one by one. She was able to show the correct plate with the same multiplicity. However, when she was asked “which one is more” or “which one is less”, she showed the same plate again. This indicated that Zeynep knew the concept of “the same” but she couldn’t know the concepts of “the same” and “the less”.

It was seen that Mehmet cannot recognize the quantity of the chocolates by subitizing. He failed to subitizing, which was the first expectation of the researchers, but tried to decide the quantity of the chocolates by touching. During this process it was seen that he had a difficulty in continuing from where he stopped when he skipped a chocolates in the pattern. It was also seen that he had the same difficulty when he was comparing the target number with the plate he counted in the touching sessions. Generally, when analyzed, the results showed that he provided correct answered for the questions asked in the concrete level while he failed to provide correct answers for the questions about the concepts of the less and the more.

Table 2: The answers of students in number relationships in concrete level

Participant	Instructions	1	2	3	4	5	6	7	8	9	10
Ali	The Less	+	+	+	-	-	+	+	+	+	+
	The Same	+	+	+	+	+	+	+	+	+	+
	The More	+	+	+	-	+	+	+	+	+	+
Zeynep	The Less	-	-	-	-	-	-	-	-	-	-
	The Same	+	+	+	+	+	+	+	+	+	+
	The More	-	-	-	-	-	-	-	-	-	-
Mehmet	The Less	-	-	-	-	-	-	-	-	-	-
	The Same	+	+	+	+	+	+	+	+	+	+
	The More	-	-	-	-	-	-	-	-	-	-

The answers of the students at the concrete level is seen in the Table 2. In Table 2, the signs “+” and “-” show the students’ answers to the questions in accordance with the instructions. As seen in table , concrete level, Ali, unlike his two other friends, gave correct answers almost in all instructions.

3.2. The ability of students with mild mental retardation in number relationships in representational level

The second sub-question sought an answer for the question “How is the ability of students with mild mental retardation in number relationships in representational level?”. When the findings of the participants are considered, three of the participants’ situations were found to be as follows:

It was seen that Ali repeated the same mistakes that he did at the concrete level. As he corrected his miscounts at representational level, he was found to be more successful in showing the less, the same and the more multiplicities.

Zeynep has difficulties in distinguishing the concepts ‘the same’, “the less” and “the more”. She counted the target multiplicity and stated that they were the same, pointing out one of the other three plates. It was seen that Zeynep failed to provide correct answer for any of the instructions at the concrete level. Generally speaking, although Zeynep has prerequisite skills, she couldn’t have a precise understanding of the concepts of “the less” and the more”. As for the term “the same”, it might be inferred that although she had an idea about what “the same” was, her correct answers did not necessarily mean that she knew the quantity of it but probably because they were represented with the same numbers. The fact that she showed the one with what she shoed for “the

same”, when she was asked to show “which one is more?”, indicated that she did not quite perceive the term “the same” clearly.

Mehmet was also asked to compare the number of counting circles in the tables with the target number. However, he could not distinguish the counting circles at this level either and he pursued the activity feeling the need for touching. At the concrete level, although he provided correct answers to the term “the same”, it was seen that he provided wrong answers to some questions about the term “the same”. The main reason for this was found that he felt the need for recounting the target multiplicity in order to relate the counting circles and target multiplicity.

Tablo 3: The answers of students in number relationships in Representational level

Participant	Instructions	1	2	3	4	5	6	7	8	9	10
Ali	The Less	+	+	-	+	+	+	+	+	+	+
	The Same	+	+	-	+	+	+	+	+	+	+
	The More	+	+	+	+	+	+	+	+	+	+
Zeynep	The Less	-	-	-	-	-	-	-	-	-	-
	The Same	-	-	+	-	+	+	-	+	-	-
	The More	-	-	-	-	-	-	-	-	-	-
Mehmet	The Less	+	-	-	-	-	-	-	-	-	-
	The Same	+	+	+	+	-	-	+	+	+	+
	The More	-	-	-	-	-	-	-	-	-	-

The answers of the students’ at the representational level were given in Table 3. As seen in Table 3, at the representational level, Ali again unlike his other two friends, provided correct answers to all instructions.

3.3. The ability of students with mild mental retardation in number relationships in abstract level

In the third sub-question, it was sought to find an answer for the question “How is the ability of students with mild mental retardation in number relationships in abstract level?” The results of the findings about the three students were found to be as follows:

It was seen that Ali experienced almost similar experiences as he had at the concrete and representational levels. On his confusing “the less” and “the more” for the questions 4 and 6, to the researcher’s question “which one is bigger 9 or 7?”. He replied as 7. This might be resulted from the fact that confusing the quantity of numbers as a symbol.

Zeynep had difficulties in gathering her attention. Although she was able to define the number of sticks correctly, when she was asked to show which one of the number of counting cards placed on the plates was the same with the number of the sticks, “which is less” and “which is more”, she pointed out all of the plates. Therefore, she failed to provide appropriate answers. That she answered as 8 for the question “which is bigger 8 or 6” and answered as “6” for the question “which is bigger 6 or 8” and same inconsistencies for such kind of questions indicate that Zeynep had difficulties in understanding abstract expressions.

Since Mehmet recognized the numbers during the evaluation of the abstract stage, he was able to provide correct answer for the question “which is the same?” However, it was seen that he failed to provide inconsistent answers for the questions “which is more” and “which is less?” particularly, changing the places of the patterns and his tendency of doing the exercise by rote contributed negatively to his answers. Following the answer for “the same”, when the plate was distanced from the environment, he felt it necessary to recount the lines again.

Table 4: The answers of students in number relationships in Abstract level

Participant	Instructions	1	2	3	4	5	6	7	8	9	10
Ali	The Less	+	+	+	-	+	-	+	+	+	+
	The Same	+	+	+	+	+	+	+	+	+	+
	The More	+	+	+	-	+	-	+	+	+	+
Zeynep	The Less	+	-	-	-	-	-	-	-	-	-
	The Same	+	-	-	-	-	-	-	-	-	-
	The More	+	-	-	-	-	-	-	-	-	-
Mehmet	The Less	+	-	+	-	-	+	-	-	-	-
	The Same	+	+	+	+	+	+	+	+	-	+
	The More	+	-	-	-	-	-	+	+	-	+

Status of the students' responded to the instructions are seen in the table 4. As can be seen in the table 4, at the representational stage, Ali, unlike his two friends, was seen to provide correct answers for almost all of the questions in the instructions. Mehmet, on the other hand, was seen to be successful in showing the reference multiplicity and the same multiplicity as he was in other two levels.

In general, the symptoms of students with mild mental retardation of showed itself also in the study. Every student had knowing numbers and counting prerequisite skills. All of the students participated in the study had no problems while finding "the same" in the other multiplicities with the given target multiplicity after they counted them. This situation was available for all of the three levels of CRA. However, except for Ali, it would be a mistake to state that the other two students had a clear understanding of the concept "the same". At the concrete stage, although there were some certain individual differences, in general it was seen that they had similarities in their making mistakes and calculating processes. Among the most common mistakes in calculating process were found to be recounting the objects and miscounts. This was also the same for the situations given in patterns. It was also seen that the counting level of the students were at the initial stage (counting by touching the objects one by one).

At the representational and abstract levels, it was found that two of the participants (Mehmet & Zeynep) had problems because of the fact that they failed to gather to do by subitizing. In general, although Mehmet has prerequisite skills, he was found not to have precise information about "less" and "more". Although he was aware of the term "the same", it has been thought that he answered correctly not because he knew the multiplicity of it but probably because they were pronounced same. Therefore, it was possible to conclude that he cannot use the term quite consistently. Particularly, one of the participants, (Zeynep) was found to be not aware of the fact that she needed to consider the target multiplicity in order to choose the plate with the less or the more multiplicity while deciding the same multiplicity based on the target multiplicity. It would be quite possible to conclude that she caught the right answer during the pronunciation of the number while counting the multiplicities in the plates when she was asked to choose "the same" one. Ali, on the other hand, was aware of three of the concepts "the less, the same and the more".

At the abstract stage, while Mehmet showed the plate with the same multiplicity, he could not show the others. Zeynep, was able to show the plate with the same multiplicity for only one instruction. Both the participants were found to be insufficient in showing the "the more" and "the less". Ali on the other hand showed a good performance in this stage as he did in the other two levels.

Results and Discussion

A general assessment of findings showed that participants failure in subitizing and counting the objects caused negative impact in ability of comparing the multiplicity. Although they could do addition and subtraction skills in assessment of prerequisite skills in the class, they were recognized as in the beginning of counting skills. Also despite of being given to participants in the form of clusters of patterned sets of multiplicities are strangers. The numbers of these children with mild mental disability appeared to be very inefficient at seeing relationships.

In the research the ability of number concepts until fifth patterns were expected to determine and after fifth pattern subitizing were expected by looking the multiplicity of patterns. But participants prefer to count all items in the patterns than subitizing in each level of CRA. Just Zeynep tended to show “the same” but she also counted after this attempt. This findings showed consistency with Muldoon, Lewis & Towse (2005) research found participants refer to count the items if they are visible.

Among participants just Ali showed expected performance and he answered the instructions with less mistakes owing to better counting skills. Also the participants showed expected performance in the concept of “the same”. But during the sessions it was recognized that it was caused by telling the same number verbally rather than understanding the multiplicity, According to Van De Walle (2007), concepts of “The more” is easier to use than the concept of “The Less”. But in the results there weren’t any result to support this idea (see Tables 2-3-4). An assesment of CRA levels, in concrete level researchers were expected more success. But in concrete level, just Zeynep had more correct answers in the concept of “The same” and there weren’t any difference among the others.

In this research, researchers expected the idea of acquiring how the teaching of mathematics in special education schools with students with mild mental retardation and defining what educators may do in the future in the classrom. However studying with the participants who had the same prerequisite skills, each participant showed different characteristics in need of special education. During sessions each participants were different mistakes depend on different sources. But their results and their attempts to answer the instructions may generalize to the literature and their abilities in number relationships recognized as not enough to gain more complex mathematics skills. This finding also showed that activities in the classroom to develop childrens’ ability in number relationships aren’t enough. So teachers should give place to appropriate activities based on literature to develop number relationships and shouln’t begin another skills without assessing students performance. This research also should do in the preschool and in the first grade of elementary school with students.

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4th International Conference on New Horizons in Education

Objectivity of learning performance evaluation evaluated by school age pupils as an assumption of achievement motivation and school success

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Abstract

In the submission are presented research findings of relationship between perceived adequacy of school age pupil's evaluation to their learning motivation and school success. The research was conducted on 140 pupils of 5th – 9th grade of primary school through success in Mathematics, items from Kozéki's questionnaire (1980) and propositions of Q-sorting (Stephenson, 1935) of perceived evaluation objectivity. It is possible to state that school success is the assumption of achievement motivation; however the learning performance is not related to perceiving evaluation objectivity presented by school success.

Keywords: achievement motivation, learning performance, school success, evaluation objectivity

1. Achievement motivation and school success

The motivation to performance is common for all activities, as it represents a general desire for success. Performance motivation is relatively stable characteristics of an individual and various people are distinctive by various strength of motivation to performance (related to the desire for success) which decides about their engaged activity. Performance motivation has situation and disposition components which determine the selection of targets, stamina and the amount of effort involved (Nákonečný, 1992). Typical representatives of performance motivation theory can be considered the theories of McClelland (1961), Ryan a Deci (2008), Keller (2010).

McClelland (1961) assumed that human motivation consists of three dominant needs: the need for performance, need for power and need for affiliation. McClelland characterized people motivated to performance as being able to set high and unattainable aims, oriented towards personal performance and not towards recognition, desiring feedback based on evaluation of performance.

Self-determination theory is considered to be the macro-theory of human motivation (Ryan & Deci, 2008). Its authors create it in a close relationship with personality development, self-regulation, life targets and aspirations, vitality, unconscious processes, personal well-being but also with universal psychological needs. Ryan and Deci (2008) consider the universal psychological needs, participating on efficient operation and psychological health of a person, to be a triad of needs, where belongs the need for competence, need for autonomy and need for relations. This means that except freedom and social interactions, the authors perceive the need for production of performance to be a crucial need.

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Keller (2010) defines his ARCS motivation model through four dimensions: attention (A), relevance (R), confidence (C) and satisfaction (S). All variables are always saturated by three sub-dimensions. Attention is saturated by perception arousal, information arousal, and variability. Relevance is saturated by orientation to targets, choice of motives, confidence. Confidence is saturated by requirements on learning, opportunities of success, personal control. Satisfaction is saturated by inner strengthening, outer rewards, and justice. From the point of motivation to performance is important process side consisting of concentration on performance, understanding the importance of the task, personal well-being and personal gain from production of performance.

Learning motivation can be understood as a specific part of performance motivation. A key representative of this perspective is Kózeki (1980) whose ideas are presented in chapter 3.

Within performance motivation we meet with success as a reflection of the result of performed activity, also connected with the experience of success. Similar situation happens by failure and related experience. These repeated experiences with success and failure go back to childhood where they are mostly connected with the experience from school environment.

School success can be defined in two ways:

In a more general understanding, it is the degree of utilization of individual pupil's potential – degree of using individual abilities, competences, his relationship to school or subject, learning motivation (Čáp, 1993; Helus, 1982;), while it reflect also its conditional factors (Čáp & Mareš, 2001) and to the most basic can be included the school environment and effect of the teacher and perception of this effect by pupil. In the level of school practice is the concept of school success related to the criteria of school success defined for the student by the teacher. Except explicit and implicit classification of school success criteria is the key factor the teacher's subjective perception of pupil's activities and their fulfilment. Teacher's subjective perception and the verification result of pupil's fulfilment of tasks reflect back in school success and identically in pupil's perception and understanding about this process. The perceived teacher's objectiveness is always interpreted subjectively by the pupil where the pupil doesn't have to take into consideration the objective indicators of education standards. Question remains whether such a representation influences the performance itself, success and motivation.

In a narrower understanding, it is defined especially through the level used in school practice and authors use the term school success equivalently with the term school result, performance (Helus, 1982). A differentiated operationalization of this term is reflected also in the differentiation of tools for its measurement and is reflected in the grades, marks or their averages.

2. Method

The research sample consisted of 140 participants whose average age was 12.6. They were the pupils of 5th – 9th grade of elementary schools, concretely the pupils of the lower secondary education.

In the research, we operated with three variables: school success, perceived objectivity of the learning performance and learning motivation. As an indicator of the school success we chose the mark of the Math, because (according to Vágnerová & Klégrová, 2008) the learning outcomes[†] of the Math are the best predictors of the self-concept and also the school successfulness in the school age. This relation was confirmed in our earlier study (Malá & Čerešník, 2011). The goal was the differentiation of the pupils into two groups. The first group was the group of the successful pupils. Their mark from the Mathematics was 1 (means excellent) or 2 (means very good). The second group was the group the less successful pupils. Their mark from the Mathematics was 3 (means average) or 4 (means sufficient).

Perception of the teacher's objectivity in the process of the evaluation was measured by Q-methodology (Stephenson, 1935 in the modification of Sexton, Snyder, Wadsworth & al., 1998). It consisted of 20 items related to teacher's objectivity (according to relevant literature) in the orthogonal configuration which were

[†] Learning outcomes are explicitly defined expectations of the knowledge amount the students have to understand and apply after the process of the education. For more information see for example Verešová (2013), Verešová, Čerešník (2013).

assessed by pupils on the scale from strong agreement to strong disagreement. On the base of their choices, we made the order of the items. In the next step, we subtracted the item value chosen by the concrete pupil from the average value of the item in the whole group. We acquired the concrete positive or negative values which determine if the pupil perceived the evaluation of the teacher as objective or not. So we can divide the research sample into two groups. The first was the group which perceived the evaluation of the teachers as objective and the second group perceived it as not objective.

For the learning motivation diagnostics, we used Kozéki's questionnaire (1980). The selection of this research method was inspired by the research of Čerešník (2012a) which was focused on learning motivation differences measurements in the different cultural contexts and also on age specifics of the learning motivation. The questionnaire consists of three basic dimensions of learning motivation (affective, cognitive and effect) which he divides into sub-dimensions (we specify their description):

- A affective dimension – represents emotional relationship to people from the closest vicinity,
 - a1 emotional relationship to parents, effort to keep good relations with them,
 - a2 emotional relationship to educator, effort to keep trust of own idol, authority,
 - a3 emotional relationship to classmates, effort to gain and keep good feeling of belonging to class,
- C cognitive dimension – represents relationship to knowledge, possibility to develop own abilities,
 - c1 autonomy and independence, motives of individual reality recognition, trust in own powers,
 - c2 intellectual motivation, need for knowledge, competence, pleasure in cognitive process, influence of self-perfection motives,
 - c3 activity, interest as a main motive,
- E effect dimension – represents relationship to expectations of the environment, motivation influence of adopted norms and their harmony with own behaviour,
 - e1 motives, resulting from self-evaluation, from the effort to keep self-esteem; motives coming from tension between real and expected performance based on self-evaluation,
 - e2 motivation influence of adaptation to group, team regulations, influence of personal responsibility for team results; norms and values of surroundings are becoming main motives for learning,
 - e3 motivation influence of moral standards and value system in a given society, its evaluation opinion on learning; motives resulting from the effort to approach the norms of society, mutual ideal.

We hypothesized that:

Hypothesis 1: there the differences exist in the learning motivation of the children in the relation with their school success.

Hypothesis 2: there the differences exist in the learning motivation of the children in the relation with perceived objectivity of the learning performance.

3. Results

To test our hypothesis we used Statistical Program for Social Science 16.0. We used Mann-Whitney test and t-test for two independent samples to test differences between research groups. As a critical statistical value which indicates the statistical significance, we appointed the standard value of $p \leq 0.05$.

The results are presented in Tables 2, 3, 4. All significant differences are emphasized by Bold.

Table 2. Differences in the learning motivation of the children in the relation with their school success

CKQ	Mark	N	Min	Max	Me	AM	SD	t	p
a1	1.2	57	-2	3	1	1.18	1.21	2.704	0.008
	3.4	83	-2	3	1	0.59	1.29		
a2	1.2	57	-2	2	0	0.05	1.17	3.669	<0.001
	3.4	83	-3	2	-1	-0.71	1.24		
a3	1.2	57	-1	3	1	1.00	1.00	2.930	0.004
	3.4	83	-2	3	0	0.47	1.09		
c1	1.2	57	-1	2	0	0.51	0.98	2.527	0.013
	3.4	83	-2	3	0	0.04	1.15		
c2	1.2	57	-3	2	0	-0.33	1.43	4.745	<0.001
	3.4	83	-3	1	-1	-1.37	1.16		
c3	1.2	57	-3	3	2	1.53	1.35	3.038	0.003
	3.4	83	-3	3	1	0.76	1.54		
e1	1.2	57	-2	2	1	0.70	1.05	1.787	0.076
	3.4	83	-3	3	0	0.37	1.08		
e2	1.2	57	-2	2	0	0.25	0.99	0.826	0.410
	3.4	83	-2	2	0	0.11	0.95		
e3	1.2	57	-2	3	2	1.54	1.23	3.131	0.002
	3.4	83	-2	3	1	0.87	1.28		
A	1.2	57	-3	8	2	2.23	2.63	4.130	<0.001
	3.4	83	-5	7	0	0.35	2.66		
K	1.2	57	-7	7	2	1.68	2.85	4.749	<0.001
	3.4	83	-7	7	0	-0.58	2.72		
E	1.2	57	-4	6	3	2.53	2.36	2.868	0.005
	3.4	83	-5	6	1	1.37	2.32		

legend: CKQ = components of Kozéki's questionnaire; Mark = mark of the Math; N = count; Min = minimal measured value; Max = maximal measured value; Me = median; AM = average mean; SD = standard deviation; t = value of t-test; p = significance; abbreviations of the learning motivation components are defined in chapter 3

Table 3. Differences in the learning motivation of the children in the relation with perceived objectivity of the learning performance

CKQ	perceived objectivity	N	Min	Max	Me	AM	SD	t	p
a1	positive	64	-2	3	1	0.86	1.33	0.259	0.398
	not positive	76	-2	3	1	0.80	1.26		
a2	positive	64	-3	2	0	-0.39	1.20	0.080	0.468
	not positive	76	-3	2	0	-0.41	1.32		
a3	positive	64	-2	3	1	0.75	1.05	0.645	0.260
	not positive	76	-2	3	1	0.63	1.11		
c1	positive	64	-1	3	0	0.36	1.10	1.285	0.101
	not positive	76	-2	3	0	0.12	1.11		
c2	positive	64	-3	2	-1	-0.83	1.32	0.966	0.168
	not positive	76	-3	2	-1	-1.05	1.41		
c3	positive	64	-2	3	1	1.27	1.39	1.400	0.082
	not positive	76	-3	3	1	0.91	1.59		
e1	positive	64	-2	2	0	0.47	1.01	-0.386	0.350
	not positive	76	-3	3	1	0.54	1.14		
e2	positive	64	-2	2	0	0.19	0.99	0.261	0.398
	not positive	76	-1	2	0	0.14	0.95		
e3	positive	64	-1	3	1	1.23	1.38	0.766	0.223
	not positive	76	-2	3	1	1.07	1.23		
A	positive	64	-5	8	1.5	1.22	2.78	0.405	0.343
	not positive	76	-5	7	1	1.03	2.82		
K	positive	64	-5	7	1	0.78	2.65	1.608	0.055
	not positive	76	-7	7	0	-0.03	3.20		
E	positive	64	-5	6	2	1.92	2.44	0.357	0.361
	not positive	76	-4	6	2	1.78	2.38		

legend: CKQ = components of Kozéki's questionnaire; Mark = mark of the Math; N = count; Min = minimal measured value; Max = maximal measured value; Me = median; AM = average mean; SD = standard deviation; t = value of t-test; p = significance; abbreviations of the learning motivation components are defined in chapter 3

Table 4. Differences in the learning motivation of the children in the relation with their school success according to perceived objectivity of the teacher

CKQ	positive perception of the objectivity						not positive perception of the objectivity					
	Mark	N	AM	SD	U	p	Mark	N	AM	SD	U	p
a1	1.2	28	1.29	1.24	146.5	0.001	1.2	29	1.07	1.19	360.0	0.121
	3.4	36	0.53	1.32			3.4	47	0.64	1.28		
a2	1.2	28	-0.04	1.29	205.5	0.020	1.2	29	0.14	1.06	208.0	<0.001
	3.4	36	-0.67	1.07			3.4	47	-0.74	1.36		
a3	1.2	28	1.04	0.96	198.5	0.013	1.2	29	0.97	1.05	342.5	0.072
	3.4	36	0.53	1.08			3.4	47	0.43	1.10		
c1	1.2	28	0.61	0.96	218.0	0.034	1.2	29	0.41	1.02	372.5	0.163
	3.4	36	0.17	1.18			3.4	47	-0.06	1.13		
c2	1.2	28	-0.18	1.36	141.0	0.001	1.2	29	-0.48	1.50	251.0	0.002
	3.4	36	-1.33	1.04			3.4	47	-1.4	1.25		
c3	1.2	28	1.57	1.23	251.5	0.128	1.2	29	1.48	1.48	305.5	0.022
	3.4	36	1.03	1.48			3.4	47	0.55	1.57		
e1	1.2	28	0.68	0.95	232.5	0.062	1.2	29	0.72	1.16	385.5	0.219
	3.4	36	0.31	1.04			3.4	47	0.43	1.12		
e2	1.2	28	0.14	0.93	299.5	0.431	1.2	29	0.34	1.05	389.0	0.234
	3.4	36	0.22	1.05			3.4	47	0.02	0.87		
e3	1.2	28	1.82	1.22	128.0	<0.001	1.2	29	1.28	1.19	320.5	0.036
	3.4	36	0.78	1.33			3.4	47	0.94	1.24		
A	1.2	28	2.29	2.58	145.5	0.001	1.2	29	2.17	2.71	257.5	0.004
	3.4	36	0.39	2.68			3.4	47	0.32	2.67		
K	1.2	28	1.96	2.47	144.0	0.001	1.2	29	1.41	3.19	258.0	0.004
	3.4	36	-0.14	2.43			3.4	47	-0.91	2.90		
E	1.2	28	2.64	2.22	187.5	0.009	1.2	29	2.41	2.53	321.5	0.042
	3.4	36	1.36	2.49			3.4	47	1.38	2.21		

legend: CKQ = components of Kozéki's questionnaire; Mark = mark of the Math; N = count; AM = average mean; SD = standard deviation; U = value of Mann-Whitney test; p = significance; abbreviations of the learning motivation components are defined in chapter 3

When testing hypothesis 1, we discovered that (table 2.):

there exists a difference between learning motivation of successful and less successful children (measured by the mark from the Math) in all dimensions and sub-dimensions of Kozéki's questionnaire, except the sub-dimensions e1 (self-evaluation motive) and e2 (motive of group regulations, norms). T-value was fluctuating between 2.527 and 4.749 and significance value from 0.013 to < 0.001.

In two cases was the average value of measured motive negative in the group of less successful children. This was motive a2 (emotional relationship to authority, teacher) and cognitive dimension of learning motivation (C). in one case we discovered in both groups of children a negative motive value. This was motive c2 (need for knowledge).

Regardless statistical significance, less successful children always scored lower than successful children.

When testing hypothesis 2, we haven't discovered any significant differences (table 3.) in learning motivation on relation to perceiving objectiveness of teacher's evaluation. We repeatedly discovered that motive c2 (need for knowledge) is negative.

Based on above stated findings we evaluated set hypotheses as follows. We can confirm Hypothesis 1 and we cannot confirm Hypothesis 2.

Despite the relative closeness of the findings we decided to examine the relation of school effectiveness (mark from Mathematics) by perception of teacher's evaluation and learning motivation (table 4.). We discovered that: children that perceive the teacher's evaluation as objective differ in all dimensions and sub-dimensions of Kozéki's questionnaire except motives c3 (interest in motive), e1 (self-evaluation motive) and e2 (motive of group regulations, norms) which is a very similar result to testing Hypothesis 1 (also in the sense of motive quality and size of discovered differences). We discovered no significant differences in the group of less successful children in five motives: a1 (relationship to parents), a3 (relationship to classmates), c1 (independence), e1 (self-evaluation motive), e2 (motive of group regulations, norms). We again discovered demotivating influence of need for knowledge (c2) in both age groups.

4. Discussion

When analysing the learning activities of pupils divided according to their school effectiveness represented by their Mathematics mark, we discovered the existence of identical motivation and demotivation factors. Based on the average values we identified the identical motivation factors, specifically the motive of following moral standards (e3), interest (c3) and relationship to parents (a1). They seem to be key factors because despite the children's Mathematics effectiveness they include all important levels influencing motivation, specifically the relationship to oneself, relationship to close people and relationship to society. The demotivating factors are identical in both groups: need for knowledge (c2) and relationship to teacher (a2). The difference between successful and less successful children represents the third identified factor. In case of successful children it is the following of regulations (e2) and in case of less successful children it is the trust in own powers (c1). More successful children are therefore more demotivated by realization of outer limitations and less successful children by the inability to perceive subjective control. Similar findings are presented by Čerešník (2012b) using a sample of university students.

The demotivating influence of need for knowledge (c2) in both tested groups can be considered specificity. We assume that this fact is caused by the expansion of external factors. A primary prototype factor influencing the thinking, feeling and behaviour is considered the family environment which is (in optimal conditions) the source of emotional support and psychical stimulation. It is presented by a unique bond which influences the attitude towards oneself, towards other people, towards one's surroundings and has influence on human motivation in the sense of selecting preferential activities. In ideal conditions, it stimulates curiosity which comes from the feeling of safety and fulfilment of basal social needs. In pessimistic conditions it is more upsetting; it leads to deprivation, or sub-deprivation. Therefore we believe that the quality of family environment is a factor which could strongly influence the exploration activity which in this period shows in the need to new understanding and knowledge.

The relationship to the teacher represented by the factor (a2), located among demotivating factors in both groups indirectly points to the relation between school effectiveness and relation to authority. This factor can't be perceived as positively motivating in either group. It has a neutral effect at successful children and it acts negatively at less successful children. The relationship to the teacher is independent from the teacher's objectiveness of evaluation in the sense of stimulation to learning performance.

We can state that school success is the assumption of achievement motivation; however the learning performance is not related to perceiving evaluation objectivity presented by school success.

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Online enhancement of English language training at a business college in Prague

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Abstract

Having stressed the role of ICT in tertiary education, the present paper highlights the online learning/teaching impact upon language training effectiveness. It briefly reports on grant projects pursued at the Private College of Economic Studies in Prague, Czech Republic, co-financed by the European Social Fund. The paper focuses on a digital learning tool for Business English, developed at PUCES language department. The modular structure of the e-learning content and on-line tutoring experience in the blended learning environment are highlighted, preconditions of successful course administration, management and completion being pointed out. An internal survey of PUCES undergraduates' satisfaction and general e-learning feedback is also mentioned.

Keywords: ESF-funded projects; foreign language teaching; e-learning; blended learning; online tutoring

1. Introduction

Academic efficiency and student comfort are general requirements that have to be met by universities and other higher education institutions. The employment of new communication technologies that make learning more interactive and thus rewarding and challenging is one of such helping ways. Non-standard learning tracks have been built alongside traditional roads to knowledge, skills and expertise. Self-paced e-learning – a by-product of a more individualized education process – makes them accessible regardless of distance and time, focusing on an individual student with his/her own pace, needs and timetable. The virtual learning environment (VLE) in which digital tools are created and shared has expanded the range of delivery modes and learning experiences beyond usual face-to-face approaches. It liberates learners since digital resources make it possible for them to schedule their own learning pathways, share them with others and get immediate feedback. That is why schools introduce new stimulating models of learner support tailored to their students' needs.

Computer-aided teaching and computer-based instructional materials have become commonplace, their advantages and drawbacks being widely debated. Plentiful websites provide abundant opportunities for those who want to study and improve their skills. However, online teaching and blended learning programmes run by universities are both more creative and controlled.

Before students can log on, enrol in a course from their PCs and mobile devices, following a web-link, passable learning roads have to be designed, built, tested, provided and maintained, which is a long and costly process. The development and maintenance of quality e-learning provision (including appropriate level of academic staff development and student online support) is expensive and time-consuming. Applying for the

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European Union grants is a good solution for smaller educational establishments whose financial and human resources are limited.

2. EU-funded projects at PUCES

The Private University College of Economic Studies (PUCES) in Prague, the Czech Republic, is a small independent business school operating in the field of tertiary education since 2001. It has been developing its own e-learning/teaching aids for seven years. Thanks to four consecutive grant projects[†] co-financed by the European Social Fund, CR government and Prague municipality budgets, the college was able to finance necessary innovations and launch its own e-portal.

Effective running of e-learning courses requires not only substantial funds but also a creatively managed team of authors, administrators and tutors. Skilfully designed project plans and good team management proved to be the keys to success. The first projects were pursued in partnership with the University of West Bohemia in Pilsen. Having been trained by experienced UWB colleagues, PUCES project administrators and course-designers adopted a proper external author tool – a well-tried ProAuthor scripting engine – compatible with Moodle, the most appropriate Learning Management System (LMS) for the development, maintenance and administration of e-learning. The college departments were in charge of particular course-content structure, technical background and graphical design support having been provided by the IT division. The chosen undergraduates took part in the e-course development as assistants and testers. PUCES academic staff were involved both in the creation and pilot phases. The course drafts and proof reading procedures having been finished, the completed e-courses were piloted and follow-up changes incorporated. Pilot cycles were subject to appraisal reviews based on data provided through questionnaires. This feedback was used for fine-tuning the e-courses and carrying out necessary alterations before they were posted onto the e-portal.

More than forty online courses have been created and made accessible so far. Most of them are predominantly customized to PUCES undergraduates' needs, the e-learning content having been developed in a variety of subjects taught at the college. They became organic parts of the blended learning environment, integrating face-to-face teaching and learning methods with on-line approaches (Littlejohn, 2006), creating the "mixture" of tutorials, off-line learning aids and online tutoring supplemented with e-learning stimuli. Some of the e-courses can be used as full distance learning units as well, thus extending PUCES portfolio of lifelong learning programmes. They are available on PUCES e-portal, using LMS Moodle software standard. The portal offers online support for the selected disciplines (e.g. accounting, finance, management, business law, computer science), including foreign languages.

Since language training is one of the profiling components of economic studies and an integral part of PUCES curriculum, the language department took an active part in the above mentioned projects. Six independent topic-based modules for business English and an e-course of general Spanish have been developed and put into operation on the college e-portal.

This paper focuses on a module-structured e-learning tool *Business English* designed, piloted and run by PUCES language department.

3. Online language learning/teaching support

Business English (I and II) comprises six self-contained modules, offering more than 50 hours of self-study materials and integrated activities loosely linked to a seven-semester business English course. They are primarily

[†] First two projects ("PUCES E-learning Provision Development" and "Accounting and Taxation E-courses for Disabled Self-employed Workers") were run between 2006 and 2008. The follow-up project ("PUCES Educational and Pedagogical Potential Development") started in February 2009 and finished in April 2010. The current project within the Prague – Adaptability Operational Programme, entitled "The Innovation of Undergraduate Programme Economics and Management", has been underway since 2012.

designed for PUCES part-time students (majoring in economics and management) who attend intermediate business English courses. They can be updated and modified to meet the changing needs of different undergraduate classes, since they contain both self-study and classroom materials and activities. They may be used as supplement reference courses in full-time classes as well. The intermediate level of language proficiency and knowledge is expected; that is why the objectives, instructions and assignments are given in the target language only.

The online learning modules are used in specific teaching situations, employing methodology different from that of standard direct instruction. They are intended to supplement and follow up work done in regular language tutorials (held once a week), helping students become more confident and accurate. They are provided to raise learners' awareness, practising and consolidating relevant linguistic devices – lexis useful for selected communication skills (e.g. writing reports and summaries, making phone calls, holding meetings, talking about processes and operations, making arrangements, running marketing campaigns) as well as the targeted grammatical items (e.g. passive vs. active, infinitive vs. gerund, modal verbs, articles, comparatives). The aim is to provide a balance between the extended linguistic content and some professional skills, as well as those of reading, listening and writing, which the required communication standards are based on.

3.1. Module structure and e-learning content

Each module is divided into small units of nine different types (pre-test, explanations and examples, exercises, reading and vocabulary practice, listening and vocabulary practice, writing assignments, Internet search, discussion forum, revision test), covering various aspects of given topics and activities. Learning objectives are indicated at the beginning of each unit. Particular activities, exercises and tasks are designed to take from 10 up to 40 minutes. Much of the material is adapted from relevant sources that are referred to in footnotes. (Podcasts lessons are borrowed and adapted with the permission of EnglishPod.com. and ESLpod.com.)

As an example, see the contents of one of the modules (“Business meetings”) in Fig. 1 below:
















- ✓ [The passive vs. active I \(pre-test\)](#)
-  [The passive I \(explanations and examples\)](#)
-  [The passive vs. active II \(exercises\)](#)
-  [The passive II \(writing assignment\)](#)
-  [The passive vs. active III \(revision test\)](#)
-  ['Working or meeting?'](#)
-  [Holding business meetings \(reading and vocabulary practice\)](#)
-  [Opening and closing a meeting \(listening and vocabulary practice\)](#)
-  [Management culture \(reading and vocabulary practice; writing assignment\)](#)
-  ['Useful or useless?'](#)
-  [Making suggestions and managing interruptions \(listening and vocabulary practice\)](#)
-  [Running meetings effectively \(writing assignments\)](#)
-  ['Listening or speaking?'](#)
-  [Getting back to topic and holding a vote \(listening and vocabulary practice\)](#)
-  [Language of formal meetings \(writing assignment\)](#)
-  [Holding a meeting \(revision test 3B\)](#)

Fig. 1. Module structure

The above example shows a standard module structure. Each module begins with a self-test, followed by short grammar presentations, practice exercises (with answer keys) and written assignments (to be sent to the tutor) based on chosen business situations. The second part of each module contains extended general and professional lexis, introduced and contextualized through the reading texts and listening exercises (podcast lessons). Several discussions follow naturally from the activities. The modules contain revision tests, checking both selected grammar points and writing skills. There are also some internet (re)search tasks and recommended website links for further vocabulary extension and extra grammar practice available throughout the units. (See the respective module icons in Fig. 2 below.)

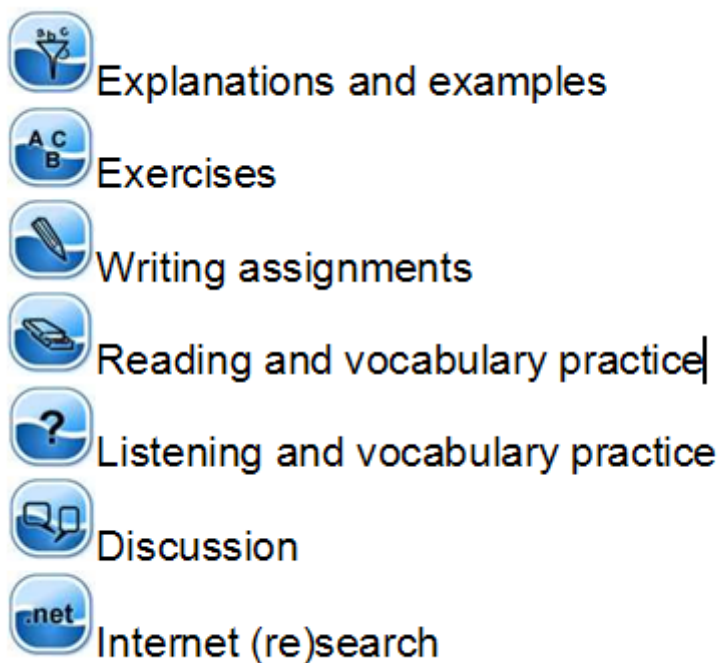


Fig. 2. Module icons

3.2. *How to proceed and succeed...*

Since the independent grammar review sections are based on traditional presentation-practice-production sequence, students are recommended to do all the activities and exercises in the given order, starting with initial pre-tests. However, particular units, pairs or trios of them (explanations, exercises, writing assignments, listening and reading texts) can be dealt with out of sequence if a specific need arises.

The most important precondition for successful course management, administration and completion is smooth and regular student-tutor communication. Written tasks should be attended to and sent to the tutor regularly. They provide opportunities for freer practice and individual corrective feedback from the tutor, and – last but not least – students have to score points in order to pass. It stands to reason that revision tests have to be taken after finishing the preceding practical tasks. So as to foster a good online group dynamic, students are invited to take part in some discussions and share views on the topic-related issues.

A reasonable pass mark was pre-set. In order to get semester credits, it is necessary to achieve at least 70% of all the points for the written assignments (checked by the tutor) in each module, participate in at least one discussion and pass the revision tests.

4. PUCES online learning/teaching experience

The college project team carried out an internal follow-up research on PUCES undergraduates' overall satisfaction with on-line learning support. Assessment questionnaires were designed for the reflection of students' experience of working with all the newly launched e-courses.

Both educational approaches and outcomes – students' achievements (i.e. knowledge and skills acquired) in relation to learning goals were assessed. PUCES students evaluated how the exercises, review questions, self-tests, test cases, contributions to discussion forums, assignments submitted to the tutor, etc. met the requirements for the feedback on their progress. Aesthetic and technical aspects of new e-courses as well as the language and stylistic level were appraised. Course administration and timetable (tutorials, outcome registers, individual and group support, tutor's leadership and expertise, etc.) was also given full attention. Both PUCES graduates and tutors judged the frequency and quality of mutual communication, the level of social interaction within study groups as well as motivation and other subjective factors influencing students' activity. The respondents appreciated both e-courses' structure and learning content, having required proper tutors' management and timely and frequent feedback on written assignments.

The online tutoring phase proves to be a key, personalized stage of the learning process. It is rather demanding – and, in the end, rewarding – for both the tutor and the enrolled student. The former is more of a mentor on the website, checking the assignments, monitoring progress and ready to help, the latter waiting for and relying on the tutor's feedback. (According to the internal survey – see below –, PUCES language teachers provide the fastest, most comprehensive continuous feedback of all the tutors.)

The tutor's role is that of a facilitator who conducts tutorials, provides online feedback on students' progress, setting appropriate tasks. Most online students do well and enjoy taking part in e-learning courses, however, those who lag behind or lack in "faith" deserve tutor's encouragement. Continuous support and commitment seems to be the crucial success factor.

5. Conclusion

Virtual learning environment has expanded the range of learning experiences beyond usual face-to-face methods. It liberates learners in terms of mode of study, offering them a wider choice as to when, where and how they learn. Digital resources and devices make it possible for undergraduates to schedule their own study, share it

with others and get immediate feedback (through self-assessment tools). That's why schools introduce new stimulating models of learner support customized to their students' needs.

E-learning delivered through VLE, however, makes greater demands on undergraduates' independence and sense of responsibility as well. No wonder that study programmes with a higher share of online learning are much sought after by part-time students in whose own interest it is to coordinate their school, job and family commitments.

Electronic coverage by distance-learning aids has become an essential complement of part-time study programmes in particular, indicating further steps that have been taken from teacher-centred to autonomous learner-centred training. The development and maintenance of quality e-learning provision (including appropriate level of academic staff development and student support) is costly and time-consuming. Moreover, teachers – transforming themselves into materials developers and tutors – still have to rise to the challenges and potential benefits of digital tools. Necessary changes cannot be fuelled only by technological advances, a reasonable level of computer literacy being only a precondition. Sound didactics seems to be equally important to achieve positive learning outcomes, making the most of what internet technologies offer.

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4th International Conference on New Horizons in Education

On the two connected concepts in secondary school mathematics: algebraic expressions and linear equations

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Abstract

Algebraic expressions and linear equations are a vital part of the secondary school mathematics. A substantial amount of research has shown that students have some difficulties recognizing the structure of both of these concepts. In this study, it is analyzing the students' understanding of the differences and similarities between algebraic expressions and linear equations. For this purpose, six eighth grade students were interviewed and observed as they worked with various mathematical tasks relating to algebraic expressions and linear equations. The data collected in this study showed that these students simplified algebraic expressions and solved linear equations with one unknown, arriving at the correct result. But, they still had difficulties indicating a relation between algebraic expressions and linear equations.

Keywords: algebraic expression, linear equation, secondary school mathematics

1. Introduction

Algebraic expressions and linear equations have been a vital part of secondary school mathematics curricula. Particular to Turkey mathematics school curriculum, the Algebra Standard for grades 7-8 states that students “use symbolic algebra to represent situations and to solve problems” (MEB, 2007). In high school mathematics curricula, the Algebra Standard for grades 9-12 suggests that students “understand the meaning of equivalent forms of expressions, equations” and that they “write equivalent forms of equations” (MEB, 2007). Expressions and equations have also been a significant part of the history of mathematics (Kieran, 1989); the Greek mathematician Diophantus was the first to use abbreviated forms for algebraic expressions, giving rise to “syncopated algebra” (Sfard, 1995). Al-Khwarizmi, a Persian mathematician wrote «al-Kitab al-mukhtasar fi hisab al-jabr wa'l-muqabala». Francois Viete, in 1591, wrote an algebra book which formally gave rise to symbolic algebra (Sfard, 1995).

The research shows that students should gain experience with modelling situations using expressions before they are introduced to the concept of equation. Tall and Thomas (1991) identified a main obstacle to making sense of algebraic expressions. For example, many students tend to interpret expressions such as $5+3x$ as $8x$. Kieran (1989) claims that students who “view the right-hand side of an equation as the answer and who prefer to solve equations by transposing,” lack an understanding of the balance between the right and left hand sides of the equation. Students also face difficulties when working with equivalent equations (Steinberg et al., 1991). The data showed that many students could not distinguish between expressions such as $7x$ and $7+x$. Hall reports that some students have difficulties combining “like” terms in expressions such as “ $4x+3y+3x$ ” which involve “unlike”

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terms within the expression. This study attempts to address students' understanding of the differences between algebraic expressions and the concept of linear equation

2. Methodology

Specifically, the following questions are addressed in this study:

1. What difficulties do 8th grade students have with identifying differences between algebraic expressions and linear equations?
2. What sense do 8th grade students make of the various verbs such as 'simplify' and 'solve' and nouns such as 'solution', 'value', and 'variable' associated with algebraic expressions and linear equations?

Four eighth grade students participated in the study. All students received classroom instruction on simplifying algebraic expressions and solving linear equations prior to the study. These students were chosen because they represent a variety of secondary schools, had different teachers, used same curricula in their algebra classrooms, and they were different mathematical ability. The students were asked to provide written responses to the items on the instrument. In addition, they were asked to talk about their thinking and the processes they used to respond to the items.

Overall, the students worked with five types of tasks, organized under four activities:

- Task1: Sorting cards on which an algebraic expression or linear equation was written,
- Task2: Observing common characteristics of and identifying differences between algebraic expressions and linear equations,
- Task3: Combining like terms and simplifying expressions,
- Task4: Solving linear equations,
- Task5: Producing algebraic expressions and linear equations.

Activity 1: Sorting cards

Twelve index cards are provided. Sort the cards according to what you see as common among them. If a phrase is written on a card, sort according to what the phrase would result in if written mathematically.

- | | |
|-----------------------------------------------------------------------------------------------------|---------------------------------------|
| 1) $5x - 5$ | 2) $b + 21 = 7$ |
| 3) add 2 to $2a$ | 4) $5 + t$ |
| 5) $m + 4 = 12$ | 6) y is 5 more than x |
| 7) $s + \textcircled{\textcircled{0}} = \textcircled{\textcircled{0}}\textcircled{\textcircled{0}}$ | 8) $16 + \Delta = 125 + \Delta\Delta$ |
| 9) $2m + 1/4 n = 1/2$ | 10) $1/2a + 1/3b + 1/4c$ |
| 11) $3(4k - 5l) + 6m$ | 12) $m + n + r = a + b + c$ |

Activity 2: Characteristics of algebraic expressions and equations

Why did you sort the cards the way you did? What do you observe that the cards in each of the piles you sorted them into have in "common"? What do they have "different"?

Activity 3

- 1) Simplify $3a - 3 + 2a - 9$
- 2) Solve $3m - 4 = 5m + 7$

- 3) Simplify $a - 2 - 4b - 2a + 1 + 3b$
- 4) Solve $2x - 3 + 4n = 3x + 5 + 6n$
- 5) Combine like terms: $7k + 12 + 3k + 3(k + 14 - 4k)$
- 6) Solve $5p + 12 = 3p + 3(7p + 6 + 9p)$
- 7) Give an equation that has 4 as a solution
- 8) Give an expression such that when x is 2 the value of the expression is 0
- 9) Give an expression such that when x is 0 the value of the expression is 2

Activity 4

What is/are the “differences” between expressions and equations?

3. Findings

All four of the students “simplified” algebraic expressions and “solved” linear equations with one unknown given to them in symbolic form with ease, arriving at the correct result. When faced with the instruction simplify all students combined like terms. During the interview, all students mentioned that simplifying and combining like terms is one and the same thing. However, they all mentioned the term “simplify” in relation to algebraic expressions and none of them related the term to equations. When the students were faced with the instruction solve, four of them performed a “do the same thing to both sides procedure”. Two students followed the procedure “move the unknowns on one side and the numbers on the other”.

Table 1. The table shows the way that each student sorted the cards.

Intended Sorting		Student A		Student B		Student C		Student D	
1	2	1	2	1	3	1	2	1	2
3	5	3	5	2	6	3	5	3	5
4	6	4	7	4	7	4	7	4	7
10	7	6	8	5	8	6	8	6	8

11	8	10	9	11	12	10	9	10	9
	9	11	12			11	12	11	12
	12				9-10				

Student B said, he placed cards 9 and 10 on the same pile by themselves because “they were the only ones that contained fractions”. He then placed cards 1, 2, 4, 5, and 11 on the same pile because “they contained either one or in the case of card 11, two variables. So, they had a small number of variables.” As he indicated, he chose to place cards 3, 6, 7, 8, and 12 together because they “have more words or shapes like circles or they have many variables”. When Student A, Student C and Student D were asked about the “differences” in the two piles in which they sorted the cards, they all indicated that the cards on the right pile had an equal “sign” whereas those on the left did not. Also, these three students identified the cards on the right pile as “equations”. However, they could not remember the term “expressions” when asked “what name” they would give to the cards on the left pile.

Table2. Students were asked to produce expressions and linear equations in Activity 2 tasks 7-9 their responses were as follows

Student	Give an equation that has 4 as a solution	Give an expression such that when x is 2 the value of the expression is 0	Give an expression such that when x is 0 the value of the expression is 3
Student A	$4 + x = 4$	$x = 2$	$x + 2 = 2$
Student B	$2 + 2 = 4$	$-x = -2$	$x = 2$
Student C	$12 - x = 4$	$2 - x = 0$	$2x = 0$
Student D	$20 \div x = 4$	$-x + 2$	$x + 2$

The only student who made a distinction between expressions and equations in the tasks was Student D who provided correct algebraic expressions in tasks 8 and 9. During the interview, she corrected her response to task 7 to be $20 \div x = 4$. Student A did not distinguish between equation and expression in the above items.

4. Conclusion

In general, the data collected in this study has shown that students associate the term simplify with algebraic expressions and the term solve with equations. They may still not be able to identify the difference between the two and may find it very challenging to generate expressions or equations. Student confusion may not arise because of student misconceptions or difficulties with using mathematical concepts but perhaps because of the language they face.

Teachers should be extremely careful with interchangeably using mathematical terms in the classroom such as expression and equation. If they are not careful with language use then students might come to believe that the two concepts are actually the same and thus, not be able to distinguish between them. Teachers should use the term “expression” more frequently even after having finished instruction on expressions. Students should be reminded of the term expression while they receive classroom instruction on equations so that they acquire the correct mathematical vocabulary.

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4th International Conference on New Horizons in Education

Opinions of Families with Pre-school Period Children toward Computer Games

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Abstract

Preschool education is the most critical period in child development. In today's world where technology is advancing rapidly and inevitably surrounding the people, its importance related to preschool period is undeniable. Numerous studies have revealed that children spend quite a lot of their time with computers, particularly computer games. The purpose of this study is to research general attitude and opinions of families with preschool kids on computer games. This is a qualitative research that examines the opinions of families with preschool kids toward computer games. Sample of the study are 11 fathers and mothers living in Istanbul with preschool kids. Semi-structured interview has been developed by researchers and used as a means of data collection. In interview analysis, descriptive analysis technique has been used that complies with qualitative data analysis. We have consulted to views of 2 expert academicians for reliability. Findings of the research reveal that parents find the time spent with computer games appropriate and do not experience crisis or problems in abandoning the game. The most commonly played game type was shoot the target games while brain teasers and line/drawing games were the least preferred types. We have observed that parents try to intervene by talking and banning and also in case of insistence they draw the child's attention somewhere else.

Keywords: preschool education, computer games, family

1. INTRODUCTION

Today's education aims to raise individuals who are able to use technology, catch up with technological innovations, have easy access to knowledge, classify, serve and share knowledge. Child's access to knowledge in preschool education is realized through games. Game is of great importance particularly in preschool child development.

Children learn things themselves by trying during games and get rid of the pressure from the adult and outer world. They develop personal and social skills they need, accelerate cognitive emotional development through game (Razon, 1997; Cheng, 2001). Teaching through game is quite important at this point.

Today's children spend most of their time in front of computers, with technological devices and playing computer games (Kafai, 2001). Using computer in preschool period may contribute to development of hand-eye coordination, consolidation of learning and development of decision-making skills. However, it must be used under adult guidance and limited to a short time (Oktay, 2002).

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Game software may contribute to mental and affective development of students as they teach rules, create competitive setting and they are also entertaining (Akkoyunlu, 1998). Hitchcock and Noonan (2000) emphasized in their study that computer software is an important means of developing academic skills. Sahin and Yildirim (1999) have related the educative degree of an educational game to how well its software is structured. Educational games are divided into two groups. Real life simulation games enable the user to assume roles they are accustomed to in real life by giving scenarios directly related to real life. Academic games may teach exercise, practice, revision, problem solving strategies (Sahin & Yildirim, 1999).

It can be stated that educational computer games have been designed in consideration of the strong teaching potential of computer games developed with integration of game features into computer. Teaching from computer games or game-based learning may be modeled as below.

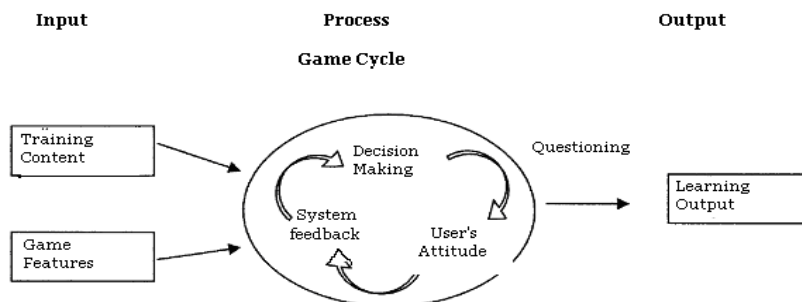


Figure 1. Game-based learning model (Garris, Ahlers and Driskell, 2002; Joanneum,

From a popular perspective, computer games seem to evoke mixed reactions. On one hand, many are troubled by the violent themes that constitute certain games, and some are concerned with the intensity of involvement and amount of time that youth devote to playing computer games and to being able to find and use information (Garris, Ahlers & Driskell, 2002).

Ricci et al.(1996) proposed that instruction that incorporated game features enhanced student motivation, which led to greater attention to training content and greater retention.

It is known that playing computer games with violent content causes aggressive behavior in children and youngsters (Kars, 2010). However, labeling computer games as good or bad is related to their content and time spared for playing them (George & Comerchi, 1996).

When studies on this topic are reviewed; in their research named “Effects of Rotational Play Feature on Electronic Games on Student Motivation: The Incredible Machine Case”, Inal, Sancar & Cagiltay (2005) examined the effects of single user and rotational play features on motivation of children. In the study covering 56 students between the age of 7 and 13, vast majority of the children stated that they liked more the single user part and found rotational play much more poorly designed in comparison to single user feature. Girl-girl competition among students is lower than boy-boy and boy-girl competition and girls are more inclined to cooperation, which may be helpful to trainers in group-forming during rotational games. The study also found out that younger learners need more explanation about how to use the game and more guidance during the game. In their study called “Science Teaching (Physics, Chemistry, Biology) Through Games”, Budak, Kanli, Koseoglu and Yagbasan (2006) stated that using various science games in learning science or consolidating previously learned subjects would make science learning easier and more entertaining. Garris, Ahlers and Driskell (2002)

revealed that students playing education content “Bottom Gun” developed their periscope using skill more than those students who did not play this game and received traditional education. Viadero (1999) carried out a study on 237 students in two primary schools in California, emphasizing the importance of spatial skills in learning. They concluded that piano lessons specially integrated with computer games might help students to understand mathematics. In their study named “The Effects of Feedback Strategies in Education Software on Learning Process of Children between 5-7”, Ozdener and Yildirim found out that success level of students who were trained through education software with feedback based on the literature knowledge was higher than the other group.

In today’s world where technology is advancing rapidly and inevitably surrounding people, its importance related to preschool education is undeniable. Computer games are one of the games preferred by children in this period. Parents are occasionally worried about these games.

The goal of this study is to examine the views of families with preschool children on computer games.

2. METHOD

This is a qualitative case study. Qualitative study is defined as a study where qualitative data collection methods such as interview and document analysis are used and a qualitative process is followed in order to reveal perceptions and events in a natural environment in a realistic and integrated manner (Yildirim & Simsek, 2005, 39).

2.1. Study Sample

The study was carried out with data obtained from 11 fathers-mothers with preschool children, specified with purposeful sampling.

The study sample comprises 11 fathers and mothers who live in Istanbul and have preschool children. Fathers and mothers were selected from the selected institutions on a voluntary basis. 2 of the 13 fathers and mothers who were asked whether their children played computer games answered the question negatively, so the study resumed with 11 fathers and mothers. Code names and several features of the sample parents are given in Table 1.

Table 1. Demographic Features of Parents in the Study

Code Name	Education	Age	Job
Sema	Bachelor’s Degree	46	Doctor
Nihal	Associate Degree	33	Tourism Professional
Dilek	Doctorate	36	Academic member
Beyza	Doctorate	40	Academic member
Seyhan	Doctorate	35	Research Assistant
Nesli	Bachelor’s Degree	33	Architect
Ahmet	Doctorate	38	Academic member

Ozge	Associate Degree	30	Tourism Professional
Mehmet	Doctorate	40	Academic Member
Osman	Bachelor's Degree	44	Doctor
Gul	Associate Degree	38	Nurse

The study sample comprises 3 fathers, 8 mothers. 3 have bachelor's degree, 3 associate and 5 have doctorate degree. 2 are doctors, 2 are tourism professionals, 1 is a nurse, 1 is an architect, 1 is a research assistant and 4 are academic members. 7 are between 30-39 years old while 4 are 40 or older.

2.2. Data Collection Instrument and Data Collection

The data were collected with half structured interview form comprising demographic information questions and open-ended questions designed by the researchers. The most frequently used qualitative method is interviewing. The most basic method used during the interviews was oral communication. The qualitative researchers using the interview method should have the training on features, preparation and realization process of this method. The most important facility of the half structured interview technique is that it provides more systematic and comparable information as the interview can be completed pursuant to the previously designed interview protocol (Yildirim & Simsek, 2005).

Before the interviews, 3 preschool institutions in Istanbul were specified in order to select the families to be interviewed. 11 volunteer fathers and mothers whose children played computer games were included in the interview. Three open-ended questions were asked to the families. The interviews were done face to face, one to one. Each interview took 40 minutes. The interviews were recorded on tape recorder and analyzed. Data were analyzed with descriptive analysis.

2.3. Data Analysis

Descriptive analysis method was used while analyzing the obtained data. The purpose of descriptive analysis is to transform raw data into a form that the reader is able to understand and use if necessary. In descriptive analysis, the data obtained is summarized and interpreted according to the previously specified themes. Direct quotations are frequently used in order to reflect the views of the persons interviewed or observed (Altinisik et al. 2001; Yildirim & Simsek, 2005). The factors that make descriptive research reliable are familiarity with research area, the chance to gather information through face to face interviews and observation, return to the field for confirmation of the collected information and gather additional information (Yildirim and Simsek, 2005). In this study, direct information was obtained from the participants and the data was evaluated. Views of the participating families are given in quotations.

3. FINDINGS

Families gave various responses to the questions that were asked in order to understand general attitude of the families with preschool children to computer games. After these responses were analyzed with descriptive analysis technique, similar responses of each question were transformed into an article, categorized and placed in a table. The number of occurrence of each category in the responses is written beside the sentences.

Table 2. Responses of the Families to the Question “How much time does your child spend on computer games? What are your opinions about the time he/she spends for computer games? (Does it make a crisis?)”

Time Children Spend on Computer Games / Related Questions	f
He plays maximum 1 hour. Time is enough. No problem occurs.	2
He plays too much if he finds the chance. We cannot control. He causes crisis.	1
Does not exceed 1 hour. This is too much. I have difficulty in convincing to stop.	2
Plays for about 2 hours. Leaves the game by himself. Time is appropriate. No crisis occurs.	2
Plays for 1 hour only at the weekends. It's too much. I have difficulty in convincing to stop.	1
Plays maximum for half an hour. Would rather watch the players. Time is appropriate. No crisis occurs.	2
Plays for 1 hour a week. Does not need playing. Time is appropriate. No crisis occurs.	1

As can be seen on Table 2, families gave various responses to the question “How much time does your child spend on computer games? What are your opinions about the time spent? (Does a crisis occur?)”, related to the time their children spent on computer games, whether it was appropriate and crisis occurred or not while leaving the game. 9 of the parents stated their children played computer games everyday while 2 said their children played only at the weekends. 7 parents thought the time their children spared for computer games was appropriate and sufficient while 4 parents stated that the time was excessive. Moreover, 7 parents who stated that the time spent was appropriate also said that they had no crisis or trouble in leaving the game while the 4 parents who stated that the time was excessive also added that they lived a crisis. Responses from some parents are as follows (code names are used instead of names).

Beyza: “30-35 minutes a day. Actually I think that it is too long. I sometimes intervene, which causes a crisis. He is satisfied after playing longer than 1 hour and he leaves by himself.”

Gul: “(...) He plays maximum 1 hour at the weekends. I could not cope with it on weekdays so I said only weekends. I brought a limit. Some crisis occur, he tries to persuade me to play longer when his game is not finished. I switch it off when he sometimes becomes obstinate.”

Ozge: “I let him play when I'm tired because I have a rest, too. I know it's not right but it happens. He plays for about half an hour. I think 1 hour is too long. I am in favour of communication. There he is alone while playing. He is not in communication with anyone, fixed and hypnotized. I concentrate when I play. (...) My child should not be left behind. He does not stop when he should, but I warn, which causes a crisis.”

Dilek: “Actually he can play in a controlled way. At the beginning we were telling him to stop when the minute hand came to 12. Now he knows and stops by himself. He does not exceed maximum 1 hour. I know that is enough. He tests us and forces the limits. His father warns him with the pretext of limited internet. He finds it insufficient because he is sometimes lost in games. He accepts when we are strict about the time so no crisis occurs.”

Mehmet: “I resisted for along time against bringing technology home. However, I realized that the child gets behind technology and I bought an Ipad. As he spends the whole day at school, I let him play for 1 hour at home, then he gets bored and I play real games with him. He does not play computer games as he spends time with me. He plays less as we spend more time together at weekends. We go out for a walk so that he does not get lost in games indoors. He plays for 1-2 hours a day, which I think is not long. Crisis occurred at the beginning, but not anymore.”

Table 3. Responses of the Families to the Question “What kind of computer games does your child frequently play? What is the content of the games?”

Type and Content of the Games Children Play	f
Target Shooting	6
War/Soldier/Strategy Games	5
Race Games	5
Clothing Games	4
Line/Painting Games	3
Brain Teasers	2

As can be seen on Table 3, families gave various responses to the question “What kind of computer games does your child frequently play? What is the content of the games?”, related to the kind and content of the computer games that the children played. All parents gave more than one response to this question. Target shooting games are the most frequently played game type, which is followed by strategic games with war and soldier content. Then comes the race games and clothing games. Brain teasers and line/painting games are the least preferred game types. Responses of some parents to this question are as follows:

Beyza: “He plays memory, pair finding, drawing, difference finding, and clothing games. He chooses the games himself. I or his sister helps. We don’t interfere in his selection. He does not choose games above his level.”

Nihal: “He plays car race, siege, Angry Birds. We don’t let him play warfare games, which he would play if we let him.”

Sema: “He likes puzzles and making 3D cities. He prefers clothing, king games, toy soldiers and mega power games.”

Seyhan: “As a rule, killing games are forbidden. For fight games, we check the type of the fight, whether it is sportive or harmful. If it is harmful with violent content, we warn the child not to play again. He rather plays tank games. He plays strategy and target shooting games.”

Dilek: “He prefers action games. He likes games with music, race and action probably because he is a boy. We have loaded the games. He chooses himself but we have the control.”

Table 4. Responses of the families to the question “Do you try to convince to stop playing a game that your child has chosen but you do not approve (for example warfare game)? If yes, what would you do?”

Do you Intervene in a Game that You do not Approve? How?	f
I do	
Talking/Forbidding if he insists	5
Diverging his attention somewhere else	4
I don't	
He prefers the games I play	1
I believe that what is forbidden looks more inviting	1

As seen on Table 4, families gave various responses to the question “Do you try to convince to stop playing a game that your child has chosen but you do not approve (for example warfare game)? If yes, what would you do?”, related to their intervention in the games played by their children. Some of the parents said they did not intervene while vast majority said they did. Intervention styles are talking, forbidding in case of insistence, diverging the child’s attention somewhere else. There is also a parent who did not intervene having the idea that what is forbidden looks more inviting and remarkable. Some of the responses to this question are as follows:

Osman: If he insists on playing a game, I choose with an appropriate content. He feels bad if it is something bad.”

Ahmet: I would begin by trying to explain and convince him to quit by offering options. I would buy a pet in order to direct his attention somewhere else. I would put forward alternatives.

Mehmet: “I would take him out or offer another game. If we train him to distinguish right from wrong, it will not be a trouble anymore and he will choose the right.”

Ozge: “We haven’t intervened in her selections up to now. She prefers the games that I play. That is probably because she is a girl. A boy would choose fight games.”

Dilek: “I don’t tell him not to play because I think that what is forbidden will look more attractive. I would explain why I don’t like the game.”

As can be seen, parents say that time spent on computer games is appropriate and they do not experience any problems or crisis in quitting the game. The most frequently preferred game type is target shooting games while brain teasers and line/drawing games are the least popular ones. Parents intervene by talking, forbidding in case of insistence, diverging the child’s attention somewhere else.

4. DISCUSSION AND SUGGESTIONS

The study examined the general attitude of families with preschool children on computer games, opinions of the families were taken about the time that children spend on computer games, type of the games they played and family intervention in the games.

Time spent on computer games by children of the families in the study are close to each other. Only 2 of the 11 children in the study play only at the weekends while the others play 1-2 hours everyday. Most of the families said that the time their children spend on computer games is reasonable while a little less than half said it was too much. However, the rate was much lower in Pack’s (1999) research. In his research on 3155 children aged 2-18

named “Kids and Media at the New Millennium: A Comprehensive National Analysis of Children’s Media Use”, Pack (1999) reported families saying that their children spent 70% of their time on computer games at home. 9% of those children played computer games for more than 1 hour. The study also reported that girls spent 8 minutes a day on computer games while boys spent 31 minutes.

The families also reported that they had trouble in time management but a little less than half stated that it resulted in a crisis. Most of the families stated that they had trouble in time management and occasionally had conflicts. It is known that conflicts in preschool period mostly end up in favor of the child as the age gets smaller. In such cases families may be trained to diverge the child’s attention somewhere else before or without going into any conflict with the child.

Target shooting games are the most frequently preferred game type. We can say that there is a hidden feeling of competition in target games. Target games are followed by war/soldier/strategic games. Race games are preferred equally with war/soldier/strategic games. We can also say that there is a hidden feeling of competition in those games. We may also consider that children try to reveal virtually the aggression potential they carry inside themselves. If this potential is not revealed in a controlled way, it may be misused by persons outside the family. Therefore, parents should be by their children while selecting and playing games, which would be of great importance as parents could make explanations about the negative perceptions that the game might evoke and guide their children. Besides, frequency of brain teasers is quite low. Awareness of families should be raised because perception, attention, decision-making and creativity skills of children can be developed easily and rapidly through computer games. Though some of the families in the study say that technology cannot be isolated from daily life, it is striking that they do not direct their children to brain teaser in game selection. Under such circumstances, computer cannot go beyond being a means of entertainment.

It is seen that parents intervene when their children play or want to play a game that they do not approve of. There are mainly two intervention types. More than half of the intervening families say that they try to convince by explaining. They deprive the child of the game when their explanation fails. They are usually inclined not to accept the deprivation or banning. They give a fight to win the child. Families should be consistent and determined in such cases. Some of the intervening families said that they tried to diverge the child’s attention to another game or somewhere else. This is one of the effective intervention methods. It would be appropriate to make the children forget and pull them to another setting without having a conflict. However, two parents said that they did not intervene in the type of the game. One of them said the child played the same games as the parent, which is a good example to how important being a model is. Families may be instructed that being a model is one of the most effective methods of making the child acquire a behavior. Akcay and Ozcebe’s (2012) study examining the computer game habits of preschool children and their families found out similar findings to those of this study. Akcay and Ozcebe (2012) found out that 78.1% of the families generally and always restricted their child’s playing computer games while 61% generally restricted their child’s playing computer games with violent content. Families reported that 48.8% of the children played computer games with violent content 1-2/3-4 times a week. The frequency of a child’s playing computer games increases as the frequency of the family’s playing increases.

The other non-intervening parent said that forbidding would solve nothing and on the contrary make the action more attractive. We can think that the child would understand his/her own mistake and correct it. The parent should not stay indifferent to this process but guide the child without making him/her aware of it. According to Tugluk (2011), the parents can stop being a forbidding authority in their children’s computer use and instead direct their children to educative games, enable them to learn and have fun simultaneously. They may be helpful in active learning process of their children by buying useful computer programs.

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Optimizing professional insertion mentoring activities - an practical model to train beginner teachers -

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Abstract

Mentoring as guidance, counseling and accompanying practice supposes trust and mutual respect between the partners of the mentoring relationship, which, in time, favors the professional and personal development of the beginner. The mentor, as a manager of mentoring activities, manages, over the duration of the probationary stage, the learning processes, the relation building processes with an interpersonal nature and the processes for the social and professional integration of the beginner. The research highlights particular aspects of the professional insertion mentoring in the Romanian educational system and submits to analysis certain internship mentoring intervention strategies by reference to the needs of the beginner teacher and the context of exercising didactical behaviors. The occasions created by investigation and reflection on existing professional practices generated a practical-action model to improve the quality of training beginner teachers. The quality of such processes depends on the mentor's abilities, the adopted training strategy and the professional intervention techniques used in training beginner teachers.

Keywords: beginner teacher, mentor, internship mentoring, didactical career

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1. Introduction

In an important European document (Rethinking Education, 2012) it was stressed the importance of defining the teachers trainer's role (the mentor) taking into consideration criteria based on competences. It was specified further the fact that *"along with the measures of ensuring quality, this should represent the bases for projecting again that systems of enrolling in order to attract and make candidates trusty for the teaching process"*. [2]

It is about the mentorship programs of professional insertion or integration meant to offer personal support and counseling for beginners in the teaching career. These mentorship programs are mandatory in 15 European states, including Romania. The professional insertion mentorship organized in schools in Romania for beginner teachers represent an actual problem. Those who decide the educational policies introduced recently in legislation (2011) the methodological frame for the organization and development of internship mentorship activities and the insertion mentor's profile. The internship mentor represents the teacher with experience from the learning institution where the intern activates, especially trained in order to be a mentor and who survey the intern's professional development in order for him to practice a teaching career at quality standards. The mentor as manager of the mentorship activities leads during the practical internship processes of learning, relational processes with interpersonal character and the processes of social and professional integration for the debutante. The internship mentor sets a professional connection with the intern and collaborates with all the factors implied in his assistance. Achieving the function of mentor teacher for the professional insertion of interns I to be made by passing a specific contest which consists of two practical tests. The mentor has the ability to demonstrate in this contest the level of personal competences that he reached according to the ideal profile of the mentor, which will recommend him for the future mentor activity. The mentorship is conceived as *"an interactive process, which takes place between the mentor and another person (pupil, student, teacher), of guidance/support in learning, education, initial professional training and/or professional development, being based on the premise of interactive implication of both parts, assuming the obligation that each party has according to their status."* [12] The mentorship activity consists of correlating 3 main processes: *"assistance/guidance given to the assisted person by stimulating reflection towards his own practices, facilitating the conceptualization process personal experiences by the assisted person, of the process of using and disseminating of some examples of good practice, self-development strategies and encouraging practices based on active learning, learning through games, through discovering, using cooperative learning, mutual learning."* [12] The quality of these processes depends on the mentor's abilities, on the training activity that he adopted, and of the professional intervention techniques used in training young teachers.

The educational mentorship is a complex process through which the mentor offers professional and personal support to his disciple, helps him to develop his self-confidence, to become independent, autonomous and mature. The mentorship relation implies a professional, conscientious and creative relationship based on confidence and mutual respect. Barbara R. Frey and Ruth B. Noller (1983) catch three important aspects of the mentorship relation:

- The mentor completes this mission in the same time with other responsibilities;
- The mentor serves as *"knowledge channel"*;
- The mentor is a permanent source of guidance until the disciple, *"flies away"*, has an independent personality.

The mentoring life cycle has been described (Hay, 1995) as comprising four definable stages which can be defined as follows: *"initiation, orientation or courtship stage, getting established, adolescence, dependency, nurturing or honeymoon stage, maturing, developing independence or autonomy stage, ending, termination or divorce."*[9]

Hargreaves and Fullan (2000) consider that teachers' training has to be based on professional standards who represent one of the mechanisms that are able to really support teaching in a professional way, taking a double role in its validation. On one hand, they represent the modality to demonstrate to society that the teaching profession has enough mechanisms to control quality, that action at the level of access, and of exercising an efficient practice, and, on the other hand, the standards will function as orienting parameters for the professional activity development, defining the efficient practice in terms of desired results. Moreover, they sustain the identification of the way in which one can draw the lines of development and evolution in teaching career.

2. Methodology

The purpose of the study consists in generating a practical model to optimize professional insertion mentoring activities by referring the training of beginner teachers to a specific set of quality standards and by valorizing the new psycho-pedagogical orientations regarding learning in a community of practice, experiential learning, transformative learning, work integrated learning, self-directed learning, cognitive apprenticeship.

Objectives:

- a. to analyze the perceptions of the beginner teachers and of the internship mentors participating in the study on the existing mentoring practices;
- b. to establish certain criteria to analyze the behaviors, training strategies and intervention techniques adopted by internship mentors;
- c. to shape and analyze a practical model of improving the professional insertion mentoring program focused on quality standards and performance indicators.

In performing the action research, both qualitative and quantitative research methods were used. The research methodology reunites the analysis of documents, the focus group, the participative observation, the study of probation mentoring activity products (the beginner's portfolio, the reflexive journal, the individualized training plan, the progress sheet, the professional dialogue sheet, the self-assessment sheet) and the questionnaire-based investigation (for 25 beginner teachers). The research targeted the occurrence of significant improvement changes in performing professional insertion mentoring activities and was made in the October-March 2013 period.

3. Results and Findings

At the focus group participated 10 mentor teachers from Pitesti, with a rich experience in the educational mentorship activity. (appendix A) The group has duties to complete as identifying some analyzing criteria of the internship mentor's activity and setting the defining quality standards for the mentor's activity.(table 1) The data obtained by using the focus-group method can represent the base of some observation charts of behaviors (for mentors and beginner teachers) in the mentorship process.

Table 1- Quality Standards for the Professional Insertion Mentoring Activities

Quality standards	Performance indicators
1.Planning the program for the mentorship for beginner teachers	<ul style="list-style-type: none"> - There is the yearly action plan of the internship mentor; - The interns are consulted on the internship program; - The specific objectives of the internship program are formulated clearly and concise together with the the beginner teacher; - The specific objectives of the mentorship program are correlated to the result actions and indicators; - There is a graphic of the activities planned within the mentorship program; - There is the yearly calendar of the mentorship teacher of the respective program; - The set of competences that is to be completed in the mentorship program is analyzed together with the beginner teacher; - The specific evaluation criteria and forms for the respective period are announced.
2. The management of the efficient communication between the mentor and the beginner teacher	<ul style="list-style-type: none"> - The mentor analyzes together with the intern the obligation that he will have, according to the job prescription; - The mentor selects and communicates to the intern relevant legislative, didactic and methodological and curricular professional information; - The mentor ensures a constructive fed-back; - There is a chart for professional dialogue; - The mentor uses diverse and efficient methods in order to communicate with the beginner teacher; - There is a feet-back chart on the mentor teacher's activity that is to be filled in by the beginner teacher; - The mentor creates and maintains an atmosphere favorable to a good collaboration with the beginner teacher; - The mentor indicates the communication and relation barriers with the beginner teacher, and uses methods of passing over them on the bases of assertive communication; - The mentor adapts communication to real situations; - The mentor respects the beginner teacher's right to his own opinion; - The mentor puts value on the correct reception of the message; - The mentor formulates questions that are relevant in order to simulate personal reflections on teaching practices/some relevant learning experiences in order to improve them; - The mentor reformulates some sentences/questions in order to make himself better understood and/or to put in agreement positions that are apparently opposed; - The mentor has an emphatic behavior and emotional support in his relation to the the beginner teacher.
3. Facilitating and monitoring the professional insertion of the beginner teacher	<ul style="list-style-type: none"> - The mentor facilities the intern's access to the resources that the school has in order to sustain his professional activity and insertion in the organizing culture of the respective learning institution; - There is a chart for monitoring the beginner teacher's insertion; - The mentors pays permanent attention to the intern's curricular and extracurricular activity and does together with the intern activities from both categories; - Makes the planning for each semester and the entire year together with the beginner teacher
4. The planning, making and analysis of the observation lessons/activities	<ul style="list-style-type: none"> - There is the graphic for the observation lessons at which he intern participates; - There is the evidence chart of the observed lessons/activities; - There are the evaluation charts at which the mentor took part; - There are evaluation charts for the extracurricular activities; - There are analyzing charts for the observed activities.
5.The psycho-pedagogical counseling of the beginner teacher	<ul style="list-style-type: none"> - The mentor offers lesson plans for different types of lessons and/or activities outside school; - The mentor projects together with the beginner teacher at least one didactic incursion; - The intern is sustained in making the school documents; - There are charts to analyze the lessons taught individually/in team with the intern; - The mentor assist the beginner teacher in making his professional portfolio; - The mentor offers the beginner teacher support and understanding in order for the intern to be more confident in himself.
6. Evaluation the intern's didactic performance and professional behavior	<ul style="list-style-type: none"> - There is the beginner teacher's (auto) evaluation chart based on competences; - There is the evaluation chart from the part of the intern's colleagues; - There is an evaluation chart made by students; - There is the final report of the intern's teacher activity;

	<ul style="list-style-type: none"> - There is an objective characterization of the intern and of the competence level that he reached and that recommends us to subscribe to the definitive degree exam; - There is the recommendation to subscribe to the definitive degree exam in the learning system.
7. The mentor's auto-evaluation and evaluation	<ul style="list-style-type: none"> - There is the (auto) evaluation chart of the mentor's yearly activity; - The yearly (auto) evaluation chart of the mentor is analyzed by the administrative council in the respective school; - There is an yearly evaluation chart for the mentor made by the mentorship inspector.

To the question: *"Which were the main difficulties that you encountered as debutante teachers in your first year of teaching?"*, the interviewed mentors answered:

- *The lack of a mentor that should support me and coach me in my didactic activity;*
- *My colleagues' resistance, who didn't took me into consideration me when I took the initiative on the reason that I was a debutante and didn't have experience;*
- *The understanding of the parents' attitude towards school, the educational process with all the difficulties of the teaching act, the evaluation results...*
- *It was difficult to handle the relation with parents, because I had a class with many students and with multiple discipline problems;*
- *Difficulties in class management and correct time management;*
- *Lack of experience in filling school documents;*
- *The daily distance to school because I walked more 2 km;*
- *Preparing an open lesson at a pedagogical meeting where my specialty colleagues took part.*

To the question: *"Was there someone who supported your successful integration in the first years of teaching? Shortly describe what this person did for you and in what way he/she influenced your teaching career!"*, the interviewed mentors answered:

- *My colleagues helped me only if I asked them, they didn't ask me whether I manage teaching or not;*
- *colleague of mine explained to me who I should fill in the school documents, and another one offered me material for one of the school celebrations; otherwise I managed myself;*
- *In my school I haven't received professional aid, maybe just some verbal encouragements;*
- *I made use of pedagogical books of a primary teacher lady who retired.....;*
- *My mother, a Romanian language teacher, was my methodological and psychological support...;*
- *Nobody supported me in my fist years as a beginner teacher. I can say I stole some work craft from where I could, enlisting to training classes, going to pedagogical meetings and asking the more experiences colleagues.....*

To the question: *"What life lessons have you received from your mentor?"*, the interviewed mentors answered:

- *To always say what I think, to have the courage to express my ideas even if sometime they are not liked by the others...;*
- *To give arguments in order to sustain my point of view;*
- *To be responsible for my ideas and deeds;*
- *To read extensively, to research, to work.....;*
- *To love children and to be a true friend for them;*
- *To really love this job and love children!;*
- *Every child is unique and important;*
- *Every child has something to offer...;*
- *Punctuality, honesty, correctness and professional objectivity;*

To the question: *What will you tell a beginner teacher at your first meeting?"*, the interviewed mentors answered:

- *I would tell him some positive/funny/ emotional experiences experienced by me with children, in my first years of activity...;*

- *I would congratulate him for choosing this profession and welcome him;*
- *I would encourage him, explaining him that the teacher profession has to be learned, and experience is gained in time through work and commitment.*

To the question: “*How will you explain the beginner teacher that he/she made some mistakes that can appear during teaching without offending/making him shift off this profession?*”, the interviewed mentors answered:

- *I would kindly explain what the mistake was, how we can fix it;*
- *I would start from a personal example, I would confess I had also made mistakes at the beginning, that they are inherent at every career beginning, in every field of activity and that experience will be gained teaching;*
- *I would correct the mistake by giving examples of good practice.*

To the question: “*Think of 3 pieces of advice that you consider the most important and which you will offer as tips to a novice in the teaching profession!*”, the interviewed mentors answered:

- *To “steal” profession from the colleagues, from the more experienced ones, or even the younger ones;*
- *To meditate over each activity and to acknowledge to himself: what did he like the most, what didn't, what he did right, what he could have done better...;*
- *Observe the child/students not as a being that has to be mastered/controlled, but as a being that has to be understood;*
- *Read all the time. Don't let the lack of knowledge make you commit errors in your teaching activity that you may regret later, but which you cannot remediate;*
- *Indifferently how hard, overwhelming, exhausting your profession may become, don't give up! Be a hero!;*
- *To be calm, to inspire trust and correctness, to create an efficient communication based on truth.*

In order to survey the beginner teachers' perceptions connected to their expectations on the mentorship internship and to draw a conclusion whether there is a significant correlation between their answers and those of the mentors, the *Beginner teacher questionnaire* was applied (appendix B).

To the question: “*On what psycho-pedagogical and methodological aspects would you like to concentrate the mentor's activities?*”, the most beginner teachers (64%) consider that in the mentorship activity the core has to be on exemplifying and applying the teaching methods and class management.

To the question: “*What aspects do you think will raise you the most problems in your teaching activity?*”, most beginner teachers (52%) consider as problems in their professional beginning: projecting the didactic activity, making teaching contents more accessible, differentiated education and evaluation.

To the question: “*What role do you appreciate the most at your mentor?*”, the most debutants (44%) answered that they appreciate the most the mentor's role model (44%), together with mentor as a resource (24%), and assessor (8%).

4. Conclusions

We consider that, by the way in which implementing the professional insertion program of mentorship was made in Romania (professional training at work place/ in school, monitoring the professional insertion by using quality instruments, mutual assistances, offering good practice, professional dialogues, self-evaluation etc.) an important step was made in increasing the young teachers' quality of training at their profession beginning. Between the limits of Romanian legislation concerning the training of beginner teachers through mentorship activities, some changes can be made, that will correct some errors:

- Making the access chart for worthwhile mentor teachers more flexible by introducing in the respective chart some quality criteria concerning: the mentor's didactic performance proved in different contexts and

acknowledged by students, their parents and the teachers community, special results with students, profs of the mentor's implication in school activities, local community life, etc;

- The proof of attending at least one mentorship program and presenting the extra value of this training;
- Experience in mentorship activities during the last 5 years;
- Giving up to some criteria that are less relevant for the professional insertion mentor: experience in leading, guidance and control jobs, educational management articles, coordinating/participating to international projects.

The aspects observed by mentor teachers and beginner teachers that took part in the study gives us the right to appreciate that there is a need for a change in the initial training for young teachers, in the sense of increasing self-knowledge for future teachers, and even more sustaining the professional implication attitude, preoccupation for personal and professional development. A major role in this sense is held by trainers from universities and mentors in schools. The models offered by them, their didactic styles, the attitudes and values they transmit, their didactic competences manifested, are sources of inspiration for future teachers, to create a harmony of theory and standard quality practice.

The research highlights particular aspects of the professional insertion mentoring in the Romanian educational system and submits to analysis certain internship mentoring intervention strategies by reference to the needs of the beginner teacher and the context of exercising didactical behaviors. The occasions created by investigation and reflection on existing professional practices generated a practical-action model to improve the quality of training beginner teachers.

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Appendix A.

Interview Guide

1. Which were the main difficulties that you encountered as beginner teachers in your first year of teaching?
2. Was there someone who supported your successful integration in the first years of teaching? Shortly describe what this person did for you and in what way he/she influenced your teaching career!
3. What life lessons have you received from your mentor?
4. What does it mean in your opinion a mentor who is trained to coach, give advice, and guide the young debutante in this profession?
5. What will you tell an intern at your first meeting?
6. How will you explain the intern that he/she made some mistakes that can appear during teaching without offending/making him shift off this profession?
7. Think of 3 pieces of advice/ tricks that you consider the most important and which you will offer as *tips* to a novice in the teaching profession!
8. What does it mean in your opinion a successful mentorship?
9. What quality standards are necessary for an efficient mentorship program?
10. What performance indicators can you associate to the suggested quality standards?

Appendix B.

Questionnaire

1. Do you think it is good to have a mentor? Give a reason!
2. What do you want to realize together with your mentor?
3. On what aspects would you like to concentrate the internship mentorship activities?
4. What aspects do you think will raise you most problems in your teaching activity?

5. The mentor offered me support in	1	2	3	4	5
5.1. The mentorship program deployment					
5.2. Making of school documents					
5.3. The school culture and specific					
5.4. The characteristics of the class					

5.5. The teachers' community	
5.6. The communication relations between teachers-students in school	
5.7. Making of lesson plans	
5.8. Team teaching	
5.9 personalized education	
5.10. In anticipating and overcoming some difficulties/approaching some crises situations	
6. I learned many teaching techniques by observing my mentor's performance	
7. I was encouraged to apply modern teaching methods and to put into practice personal ideas	
8. I was helped to identify solutions in order to overcome some teaching difficulties	
9. I received permanent feedback from my mentor	
10. I was stimulated by the way in which I was assessed	
11. I was helped to use correct and objectively the evaluation tools	
12. I was helped to identify my strong points as a teacher	
13. I was given moments to reflect on my teaching performance	

(Likert scale: 1-strongly disagree, 2-disagree, 3-neither agree nor disagree, 4-agree, 5-strongly agree)

14. What does it mean for you to be a teacher?
15. What kind of teacher will you be?
16. What do you appreciate the most at your mentor?

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Orchestrating an adaptive intelligent tutoring system: towards integrating the user profile for learning improvement

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Abstract

An intelligent tutoring system aims to provide immediate and customized instruction and feedback to learners. In this context, existing tutoring systems have limitations in the areas of dialogue, feedback and emotion-motivation, which are important elements in the learning process. These aspects are related with the learner abilities, capacities, and motivations. To overcome these limitations, we propose to model the user characteristics that are involved in the learning process and in the human-machine interaction. In this paper we present a proposal to consider an integral user profile in order to gain effectiveness and to achieve more adaptability to the learner.

Keywords: intelligent, adaptive, tutoring system, integral user profile, software engineering.

1. Introduction

Traditional instructional methods teach learners presenting facts and concepts followed by tests (Ong & Ramachandran, 2003). These methods are used for exposing learners to large amounts of information and testing their recall. However, they often impart "passive knowledge" that learners can recall but may not apply correctly when needed. With the proliferation of information technologies, nowadays, those methods have been obsolescent. Using technology to assist teaching was a solution. Teaching tutoring systems that act as personalized tutors became a popular media in past decades. By today, there are many environments for learning, varying from open online environments and Internet searching engines to desktop tools. Based on this, we have the following question: Is a personalized tutoring system an effective tool for improving learning? Individual tutoring is perhaps the first instructional method; it dates back at least to Socrates and the Socratic method (Koedinger & Corbett, 2006). In addition, one-to-one tutoring by expert human tutors has been shown to be much more effective than typical one-to-many classroom instruction (Bloom, 1984). Furthermore, computers are a familiar sight in classrooms (and outside) in the twenty-first century, and technology has been used to streamline many educational tasks, so that, we can continue improving the usefulness of computer-based tutoring systems.

Since three decades ago, researchers demonstrated that students who receive one-on-one instruction perform two standard deviations better than students in traditional classrooms (Ong & Ramachandran, 2003). However, in most cases, it is too much expensive to dedicate one instructor for each student. Then, the challenge is how to take the subject matter expertise and the teaching skills of the best instructors or mentors and encode them in a

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software system to provide the benefits of intelligent, one-on-one instruction cost-effectively systems (Ong & Ramachandran, 2003). In order to achieve this objective, from two decades ago many efforts have been made in developing intelligent tutoring systems (ITS). Other types of implemented systems are: computer assisted instruction (CAI) (Hall, Hughes & Filbert, 2000; AlSultan, Lim, MatJafri & Abdullah, 2006; Child, 1995; Fazelian, Saadatmand & Rad Saadat Gholi, 2005), cognitive tools (Beaumie & Reeves, 2007), adaptive intelligent tutoring systems (AITS) (Phobun & Vicheanpanya, 2010).

An ITS is defined as a computer system that aims to provide immediate and customized instruction or feedback to learners (Psootka & Mutter, 1988), usually without intervention from a human teacher. This context encompasses any computer program that contains some intelligence and can be used in learning (Psootka & Mutter, 1988). The main goal of ITSs is enabling learning in a meaningful and effective manner by using a variety of computing technologies (Ong & Ramachandran, 2003). However, in most cases, it is much too expensive to dedicate one instructor for each student.

Cognitive tools are technologies that learners interact and think with in knowledge construction, designed to bring expertise to the performance as part of the joint learning system (Beaumie & Reeves, 2007). Cognitive tools are generalizable computer tools that are intended to engage and facilitate cognitive processing. Cognitive tools refer to learning with technology as opposed to learning through technology.

CAI is a self-learning technique, usually offline/online, involving interaction of the student with programmed instructional materials (Hall, Hughes & Filbert, 2000; AlSultan, Lim, MatJafri & Abdullah, 2006; Child, 1995); a computer is used to present the instructional material and monitor the learning that takes place. CAI programs use tutorials, drill and practice, simulation, and problem solving approaches to present topics, and they test the student's understanding. CAI uses a combination of text, graphics, sound and video in enhancing the learning process (Fazelian, Saadatmand & Rad Saadat Gholi, 2005). In the form of a tutorial system, activity includes both the presentation of information and its extension into different forms of work, including drill and practice, games and simulation.

Adaptive Instructional Systems (AIS) emphasize that the effectiveness of instructional systems can be improved by incorporating algorithms that adapt instruction to individual capacities and differences (Ong & Ramachandran, 2005). These systems pretend to include other user attributes, such as cognitive styles, personality types, mental and emotional state, student experiences, and learning style. Most of the AIS models specify the data and algorithms required to assess (or estimate) these student attributes and apply these estimations to make better instructional decisions. Over AISs there is one more level of specialized systems such as AITS, which are systems that reach for adapting learning environments to student behavior. AITSs allow knowledge to be stored in such a way that is not only independent of the knowledge domain, but also supports the storage of transfer knowledge relationships and prerequisite knowledge relationships (Phobun & Vicheanpanya, 2010).

Even though this diversity of systems, recent research efforts are oriented to develop ITS to be applied in online education to monitor, track, record behaviors, and to perform formative assessment and feedback loop to students to foster a professional and reflective approach (Paviotti, Rossi & Zarka, 2012).

One of the most important characteristics of e-learning systems is that of being personalized, in order to fit the needs of a variety of students with different backgrounds and skills (Paviotti, Rossi & Zarka, 2012). Previous researches such as (Paviotti, Rossi & Zarka, 2012) proposed to consider aspects such as: learning style of the students, "personal predispositions" (memory, understanding, and content associations), psychological aspects, and affective states. The last two ones are focused on the types of emotions involved in the learning process.

Almost all the past researches propose a basic architecture for a tutoring system, which consists of the following elements: domain model, instructor model, learner model, expert model, and user interface. In those proposals, for the learner model there is not a complete user profile including all the human characteristics that are involved in the learning process. Several past works agreed that the user interface module is an important element that adjusts the learning environment to the user necessities. Even though this agreement, there is not a precise description about how they adapt the learning interface to the user characteristics.

In this paper we present a proposal to consider an integral user profile that includes the following user characteristics: cognitive, experience, psychological, demographic, sensory, affective, motivation, and physic. This proposal contributes to the orchestration of an adaptive intelligent tutoring system.

This paper is organized as follows. Section 2 describes some of the more relevant problems in the context of tutoring systems, and also presents the major trends. Section 3 exposes some related works. Sections 4 and 5 present our proposal for orchestrating an adaptive intelligent tutoring system. Finally, sections 6 presents the conclusions and future work.

2. Main problems, challenges and trends in the context of tutoring systems

Until today several systems have been implemented having significant results. Previous research reveals that tutoring system implementations commonly have been oriented on one type of tutoring system; there are not much evidences of implementations combining ITS, CAI, and AITS. In order to take advantage from them and to avoid their disappointments, we analyzed the main problems that are present in this context.

2.1. Expensive research for building tutoring systems

The research phase is often expensive; it requires the cooperation and input of subject matter experts, the cooperation and support of individuals across both organizations and organizational levels (Murray, 1999). A high portion of that cost is a result of content component building (Nkambou, Mizoguchi & Bourdeau, 2010), not only for the work of creating learning material, but also for the multidisciplinary required for that building. The time spent for developing the ITS is another expensive factor due to a big amount of human resources required for the system construction.

2.2. Limitations of the pedagogy of immediate feedback

The pedagogy of tutoring system currently in use is criticized; some aspects such as the immediate feedback and hint sequences that are built in to make the system "intelligent" present limitations. This pedagogy is criticized for its failure to develop deep learning in students. In some systems, when students are given control over the ability to receive hints, the learning response created is negative. "If students fail to reflect on the tutoring system's feedback or hints, and instead increase guessing until positive feedback is garnered, the student is, in effect, learning to do the right thing for the wrong reasons" (Koedinger & Aleven, 2007). In general terms, most of the tutoring systems are unable to detect shallow learning and therefore, the learning for some users is not optimal.

2.3. Lack of intrinsic motivation

Intelligent tutoring systems have been criticized for being too "instructivist" and removing intrinsic motivation, social learning contexts, and context realism from learning (Jonassen & Reeves, 1996). These

systems commonly fail in using attractive and persuasive scenarios to take students to appropriate the domain language. In such situations, if the student is not learning the domain language it becomes more difficult to gain a deeper understanding, to work collaboratively in groups, and to transfer the domain language.

2.4. *Lack of focus in learning content*

Several systems have intended to be effective and useful, but they lead in improving the usability of the system, for example, some cognitive tools (e.g. simulations) can have the effect that learner learns the tool and not something that he can transfer (Ong & Ramachandran, 2003). This is well known as the *video game effect*, that is, learner learns to operate the system and their logic, but the system does not support the learnability of educational contents.

2.5. *Lack of evaluation standards*

There are various evaluation techniques presented in the literature, such as proof of correctness, additive experimental design, diagnosis accuracy, feedback/instruction quality, sensitive analysis, expert inspection, pilot testing, formative evaluations, and summative evaluations (Iqbal, Oppermann, Patel & Kinshuk, 1999; Siemer & Angelides, 1998; Mark & Greer, 1993). Even though the usefulness of these evaluation techniques, there are no guiding principles for the selection of an appropriate evaluation method to be used in a particular context (Iqbal, Oppermann, Patel & Kinshuk, 1999; Siemer & Angelides, 1998).

For instance, there are not precise recommendations for when to use each technique, that is, if it is better to apply them during the design phase, during the implementation phase, or after the completion of a tutoring system (Mark & Greer, 1993). In general, the great challenge introduced by the lack of evaluation standards resulted in neglecting the evaluation stage in several existing ITS' (Iqbal, Oppermann, Patel & Kinshuk, 1999; Siemer & Angelides, 1998; Mark & Greer, 1993).

2.6. *The necessity of inclusion of Dialogue*

This capacity aims with attempting to simulate natural conversations (Graessner, Kurt VanLehn, Jordan & Harter, 2001). This is based on the fact that human tutors have the ability to understand a person's tone and inflection within a dialogue and interpret this to provide continual feedback through an ongoing dialogue, including being able to understand tone, inflection, body language, and facial expressions and then to respond to these (Graesser, Chipman, Haynes & Olney, 2005).

2.7. *The necessity of inclusion of Affective issues*

This concerns with the possibility of interpreting the affective process of an individual; that is, being able to interpret and adapt to the different emotional states of the learner (D'Mello & Graessner, 2012; Sarrafzadeh, Alexander, Dadgostar, Fan & Bigdeli, 2008). This is based on the idea that affective processes that learners go through also play an important role (D'Mello, Olney, Williams & Hays, 2012). It is necessary to read an individual's expressions and other signs of affect in an attempt to find and tutor to the optimal affective state for learning.

3. Related works

We pretend to integrate the usability approach in the tutoring system design. Based on this, in this section we present some related works in two main areas: adaptive user interface design, and adaptive tutoring systems.

Several efforts have been made in order to support the design of adaptive user interfaces. Two of the most relevant proposals are described here. In (Weinschenk, 2011), a set of 100 affirmations are presented, which describe the way of how humans perceive, read, put attention, memorize, and think, what thinks motivate them, how decide, how socially they act, errors committed, etc. Also, an explanation is provided about the impact these aspects have over the user interface design. In addition, a set of recommendations is presented about what to do and what to avoid for user interface design.

In the other hand, in (Johnson, 2010), an explanation is presented about the sensory and cognitive limitations humans have, and how these limitations impact the user interface design.

In (Schiaffino, Garcia & Amandi, 2008) an intelligent agent that provides personalized assistance to e-learning students is presented. This agent observes a student's behavior while he/she is taking online courses and automatically builds the student's profile. This profile comprises the student's *learning style* and information about the student's performance, such as *exercises done*, *topics studied*, and *exam results*. The student's learning style is automatically detected from the student's actions in an e-learning system using Bayesian networks. Based on this, the agent proactively assists the student by suggesting him/her personalized courses of action that will help him/her during the learning process.

Phobun & Vicheanpanya (2010) presented a proposal for combining ITS and Adaptive Hypermedia systems (AH) into an Adaptive Intelligent Tutoring System (AITS) for e-learning systems. This approach pretends to take advantages from ITSs and the capabilities of AHs. In this case, it is considered that an AH is better suited for the instruction of concepts whereas ITS generally assists in the use of these concepts to solve problems. This proposal considers two main elements of the user profile: *current knowledge* and *learning style*.

Sansoni & Giannandrea (2012) presented a proposal for the user profile in a tutoring system. They suggested that it contains pieces of information about the basic characteristics and habits of the user. Discovering these individual peculiarities is vital to provide users with a personalized service. The user profile stores learning activities and interaction history. It is created through storing both static information (as the previous course followed by the student), and dynamic information (as the learning activities that the student is doing).

Analyzing works such as (Schiaffino, Garcia & Amandi, 2008), (Sansoni & Giannandrea, 2012) and (Phobun & Vicheanpanya, 2010) we have found that there is a misconnection between leaning focus developments and user interface design approaches. Even though tutoring systems are software systems, commonly learning-oriented researches only consider aspects from the learning theory, but not consider user interface design principles.

4. Orchestrating the Adaptive Intelligent Tutoring System

ITSs incorporate a built-in expert system. Based on this idea we propose to consider various intelligent modules. In order to monitor the performance of the learner and to personalize instruction on the basis of adaptation to learners' learning style, current knowledge level, and appropriate teaching strategies (Phobun & Vicheanpanya, 2010), in this section we describe how we are orchestrating our AITS.

For orchestrating the user profile we use a Human-Computer Interaction (HCI) point of view due to we have previous works in this context (Mejía, Juárez-Ramírez, Inzunza, & Valenzuela, 2012; Mejía, Juárez-Ramírez, Inzunza, & Valenzuela, 2013; Mejía & Juárez-Ramírez, 2013); we believe that HCI makes a better consideration

of the user analysis for system design. Based on this, we propose in consider an integral user profile that includes user aspects such as: cognitive, experience, psychological, demographic, sensory, affective, motivation, and physic. Considering this integral user profile will help us to have a more useful and usable tutoring system.

4.1. Orchestrating the AITS modules

IEEE Std. 1471-2000 (Hilliard, 2000) defines software architecture as *the fundamental organization of a system; architecture is integrated for components, relations between them and the context where components will be implemented, and the principles that conduct the architecture design and evolution*. The traditional ITS model contains four components (Freeman, 2000): the *domain model*, the *learner model*, the *teaching (instructional) model*, and a *learning environment (user interface)*. We are considering other related models for integrating the AITS architecture (Phobun & Vicheanpanya, 2010): *expert model*, *tutor model*. Figure 1 shows our proposed architecture.

ITS projects can vary tremendously according to the relative level of intelligence of the components (Freeman, 2000). Each model can involve a level of intelligence in order to deals with its work inside the whole system. Based on this, we focus this description to where artificial intelligence is needed in each model and modules. Our architecture adapted from previous proposals.

Domain model. Represents the subject matter –expertise- and provides the AITS with knowledge of what it's teaching (Ong & Ramachandran, 2003). In the best scenario, it should be able to solve the problems the tutoring module submits to the students (Freeman, 2000). This module is very related with the expert model. *Artificial intelligence* would be needed for: (1) Generating solutions to complex problems, (2) generating novel problems, so that students can always have new problems to practice on.

Learner model. This model represents the student's knowledge, skills, and other attributes that affect how the student should be taught (Ong & Ramachandran, 2003). This model lets the AITS know who it's teaching. It reflects what the machine can infer about the student's cognitive state (Freeman, 2000). *Artificial intelligence* would be needed for: (1) evaluating each learner's performance to determine his or her knowledge, perceptual abilities, and reasoning skills (Ong & Ramachandran, 2003), (2) determining appropriate and inappropriate actions carried out by the learner, (3) predicting what the learner does or doesn't understand based on sequences of actions and states associated with concepts to learn.

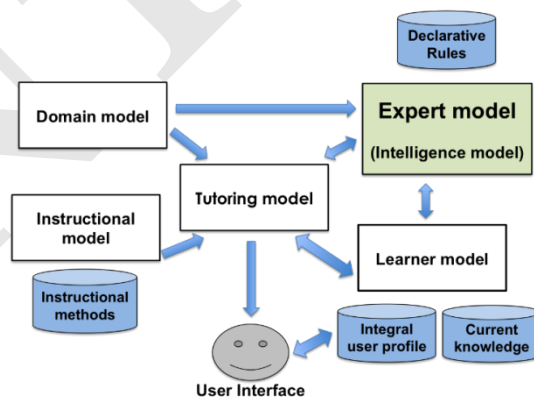


Fig. 1. Main architecture of the AITS

Instructional model. This model encodes instructional methods that are appropriate for the target domain and the learner and enables the AITS to know how to teach (Ong & Ramachandran, 2003). It contains knowledge for making decisions about instructional tactics. It relies on the information for diagnostic processes of the learner model for making decisions about what, when and how to present information to a learner. *Artificial intelligence* would be needed for: (1) cataloguing the expertise level (knowledge possession) of learners, (2) determining the level of complexity of the learning materials to be presented to the learner based on his/her expertise level, (3) deciding when to increase the complexity level of learning material for a learner, (4) choosing topics and examples that are relevant for the learner.

Tutor model. This model controls the interaction with the learner, based on its teaching knowledge and comparisons between the student model and the domain knowledge (Freeman, 2000). Based on its knowledge of a person's skill strengths and weaknesses, participant expertise levels, and student learning styles, this model selects the most appropriate instructional intervention. Also provides feedback, explanations, and coaching as the participant performs the simulated procedures. It might even pose questions, using Socratic teaching methods, to encourage students to reflect upon their actions and reasoning. *Artificial intelligence* would be needed for: (1) making decisions about what learning material and how to present this information to the learner.

Expert model. This module is a representation of a domain expert's subject matter knowledge (declarative knowledge) and problem-solving ability (procedural knowledge) (Ong & Ramachandran, 2003). It combines and applies rules to solve the problems. Also, it assesses each learner's understanding by comparing the software's reasoning with theirs, and demonstrates the software's solutions to the participant's (Ong & Ramachandran, 2003). *Artificial intelligence* would be needed for: (1) inferring the learner's needs to practice and learn at their own pace, (2) making decisions about what, when and how to present information to a learner.

User interface model: This model is important as a communication medium and learning environment that can support learning tasks. It can also act as an external representation of the expert model and instructional model. *Artificial intelligence* would be needed for: (1) inferring motivation and affective conditions to present to the learner based on their actions and achieves, (2) adapting the user interface characteristics to the user profile.

4.2. A proposal for an integral user profile

In the learning process there are two main parts, the student and the teacher. From the student point of view, there four characteristics to consider: *prior knowledge*, *learning style*, *intelligence*, and *motivation* (Huitt, 2003). Also, in de student side, during the learning process there are three main elements to consider: *content overlap*, *involvement*, and *success*. As a result of the learning process the student has achievement –*learning*. As the student is the main part of the learning process, in this section we describe a user-centered perspective, which helps giving to the tutorial system a software system orientation whose main objective is the student learning.

From the HCI point of view, user interface designers have considered simplicity and easy for learning (Biswas 2012; Biswas & Robinson, 2013). Other aspects of the user should be considered. User modeling has as objective the representation of preferences, abilities and knowledge possessed by the user (Biswas & Robinson, 2013; Tatjana & Alexander, 1997) in order to achieve usable and useful interfaces. The term “usable” is concerned with usability, while the term “useful” is concerned with usefulness. Relating these concepts, we can say that usefulness involves utility and usability. Utility concerns whether the system design provides the features user needs. Usability concerns with how easy and pleasant these features are to use.

Usability is often associated with the functionalities of a system. In the context of tutoring systems, those functionalities are related with presenting learning materials to the students, tests application, feedback to the students, and so on. From this point of view, “useful” concerns with *understanding what the learners who will be*

using the software want to achieve —what their goals are and how they go about achieving them; in this case, learning new knowledge and master new abilities in an easy way. This implies getting a better understanding of the learners and what they want to achieve, also understanding their motivations —what encourage them, what they like and don't like about what they do, and more.

Based on these ideas, for user modeling, it is necessary to consider the majority of human characteristics involved in the interaction with a machine or a software system. A human factor is a user characteristic that has relevance in the interaction between the user and the machine, a system or a product (Zudilova-Seinstra, 2007). Table 1 shows a set of factors to consider for the user modeling. These groups of factors have been integrated from the proposals made in (Stuart, Card & Newell, 1983; Cañas, Gámez & Salmerón, 2001; Quiroga, Crosby & Iding, 2004; Zudilova-Seinstra, 2007; Johnson, 2010; Weinschenk, 2011).

We are planning to consider the majority of these aspects for our AITS implementation. A first proposal for implementing the “adaption” in our AITS is taking into account the following aspects: cognitive (learning style), motivation (attitudes), affective (emotions), experience (technological abilities), demographic (scholarly, gender), physic (motion abilities), sensory (all sense), psychological (motivation, self-confidence).

Table 1. Factors for the integral user profile.

Factor group	Description	Examples of factors/attributes
Cognitive	Concerns with how humans process information; it is related with the mind and its processes.	Perception, memory, attention, concentration, decision making, learning capacity, learning style.
Motivation	Motivation engages the learner to use the system; it influences directly how the learner perceives and interprets the system.	Attitudes, necessities, expectances.
Affective	Concerns with the affective processes of an individual; that is, expressing the different emotional states of the learner.	Emotions: curiosity, satisfaction, awe; hopefulness; confusion, disappointment; frustration, discard, misconception (Shen, Wang & Shen, 2009; Kort, Reilly & Picard, 2001); Hao, 2003)
Experience	Concerns with the context of the learner, and is related with the learner previous experience with the system's domain, and using alike systems.	Technological abilities, knowledge over the system.
Demographic	Helps to put learner into a context in personal aspects; does not have a direct impact on the user interface, but it defines important aspects for learning.	Age, gender, scholarly, culture.
Physic (motion)	Aspects concern with human motion system, muscles and physical movements.	Motion abilities, movement control, and coordination.
Sensory	Concerns with such aspects related with the five senses of humans, which contribute to communication process.	Visual (eye-gate), auditory (ear-gate), hand-on (touch and physical movement). (Shams & Seitz, 2008)
Psychological	Concerns with the function of the human body, the mechanics, bioelectrical, and biochemical.	Motivation, self-efficacy, self-esteem, self-confidence. (Rahman, Yasin, Amir & Embi, 2011).

4.3. Summarizing aspects for building the adaptive intelligent tutoring system

Considering the nature and functions of each model from the tutoring system architecture and the description of the user factors, we established a connection between them as we can see in Table 2. In advance, the learner model would take into account all the user characteristics. The same case is for the tutor and user interface models.

Table 2. Determining the adaption – mapping the tutoring system models with the user characteristics

Factor group	Domain model	Learner model	Instructional model	Tutor model	Expert model	User interface model
Cognitive	√	√	√	√	√	√
Motivation		√	√	√	√	√
Affective		√	√	√	√	√
Experience	√	√	√	√	√	√
Demographic		√	√	√	√	√
Physic (motion)		√		√		√
Sensory	√	√	√	√	√	√
Psychological	√	√	√	√	√	√

The adaption is focused mainly in two components, the learning material and the user interface. For the learning materials, first we are proposing to present student learning materials respecting the complexity of contents depending on the previous knowledge and current student performance. Aspects such as demographic and experience are related with this factor. In the case of user interface, aspects such as motivation, affective, psychological, sensory and physic will contribute to adapt the user interface in terms of: visual effects, auditory effects, and animation.

4.4. Defining the complexity of learning materials

In order to determine the complexity level of the learning materials to be presented to the learner, by the moment, we are considering the following factors: *reading times*, *reading time*, *number of exercises done*, *test score*, and *test time*. We have proposed these factors derived from a survey applied to undergraduate students. Based on their experience, they considered that these factors could determine the complexity level for the learning materials. The *reading times* factor represents the number of times that a learning material (of a specific theme) has been read. The *reading time* means the time spent for reading this material. The *number of exercises done* means how many exercises the learned have done for a specific theme and learning material. The *test time* means the time spent in answering a test. The *test score* represents a score in a specific test for a learning material.

Combining these factors we can determine the level of complexity of the learning material (see Figure 2). We are considering three complexity levels: basic, intermediate, and advanced.

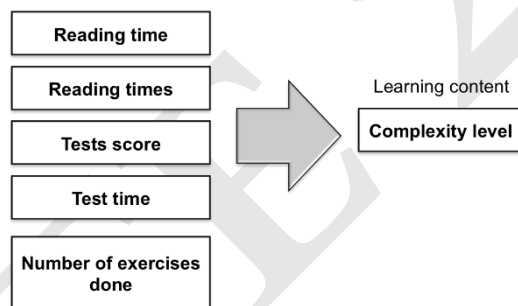


Fig. 2. Factors to define the complexity level of learning materials

It is important to emphasize that the number of factors would not be limited to this set; another variables can be considered taking into account the user characteristics contained in the integral user profile.

4.5. Learning material generation

As a first proposal, we are planning to generate learning materials considering three complexity levels and three learning styles (see Figure 3). We have the following combinations of learning materials: Basic level – Visual style, Basic level – Auditory style, Basic level – Kinesthetic style; Intermediate level – Visual style, Intermediate level – Auditory style, Intermediate level – Kinesthetic style; Advanced level – Visual style, Advanced level – Auditory style, Advanced level – Kinesthetic style.

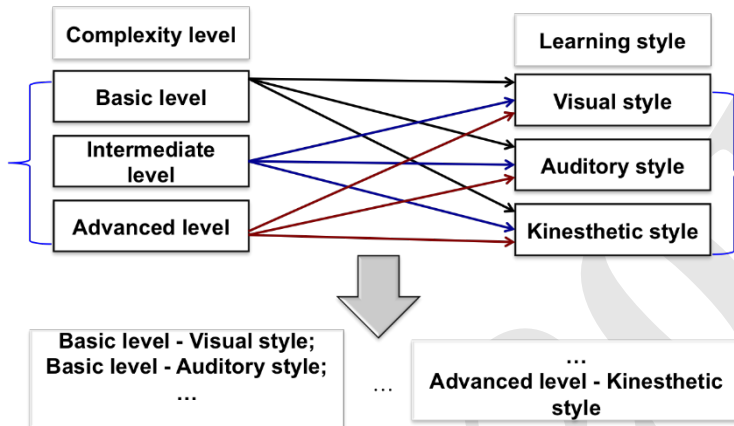


Fig. 3. Generating learning materials

By the moment, this classification helps us to present a complexity level to each student based on his/her performance.

We have implemented a set of learning materials for teaching object oriented programming. We implemented two formats for learning materials: textual explanations, and videos. We have probed the usefulness of these materials having significant opinions from students about the capacities of these materials for teaching this topic.

5. Orchestrating the intelligence of the Tutor Model

Considering that some factors have different ranges of values, for instance, *test score*; a fuzzy method has been selected for modeling and implementing the intelligence for the tutoring module. We propose to use a Mamdani method. This system has as numeric values as input; values are processed and after that a fuzzy output is generated. Bellow we describe the factors and data to be the input for the Mamdani algorithm.

In order to detect the learning style, we have considered a tool that consists in a questionnaire based on specific questions that emphasize aspects of the visual, auditory and kinesthetic styles. This tool is included in our prototype called TIPOO (in Spanish “Tutorial Inteligente para la Enseñanza de la Programación Orientada a Objetos”). The results from this tool will be stored in the learner profile inside TIPOO. Also, we have considered a timer module to measure the time spent in reading, in this way, the time spent in reading a topic will be stored in the learner profile. We have designed a test tool, which automatically calculates the score for each test. We propose the following score intervals: *low* (0-59), *acceptable* (60-79), and *excellent* (80-100). In addition, we have considered a timer for measuring the time spent in answering a test. For the test time we have define ranges

of values, having these intervals: *low*, *acceptable*, and *excellent*. For reading time we also have ranges of values, but they are mapped to the following intervals: *low*, *intermediate*, and *fast*.

In Table 3 we present a partial set of fuzzy system rules for determining the complexity level (see the fourth column), in this case we only show the rules for the kinesthetic learning style. In the same way we have proposed rules for visual and auditory learning styles, but they are not showed here.

Table 3. Fuzzy system rules – Kinesthetic learning style

Test score	Reading time	Test time	Complexity level	Learning style
Low	Low	Low	Basic	Kinesthetic
Low	Low	Acceptable	Basic	Kinesthetic
Low	Low	Excellent	Basic	Kinesthetic
Low	Intermediate	Low	Basic	Kinesthetic
Low	Intermediate	Acceptable	Basic	Kinesthetic
Low	Intermediate	Excellent	Basic	Kinesthetic
Low	Fast	Low	Basic	Kinesthetic
Low	Fast	Acceptable	Basic	Kinesthetic
Low	Fast	Excellent	Basic	Kinesthetic
Acceptable	Low	Low	Intermediate	Kinesthetic
Acceptable	Low	Acceptable	Intermediate	Kinesthetic
Acceptable	Low	Excellent	Intermediate	Kinesthetic
Acceptable	Intermediate	Low	Intermediate	Kinesthetic
Acceptable	Intermediate	Acceptable	Intermediate	Kinesthetic
Acceptable	Intermediate	Excellent	Intermediate	Kinesthetic
Acceptable	Fast	Low	Intermediate	Kinesthetic
Acceptable	Fast	Acceptable	Intermediate	Kinesthetic
Acceptable	Fast	Excellent	Intermediate	Kinesthetic
Excellent	Low	Low	Advanced	Kinesthetic
Excellent	Low	Acceptable	Advanced	Kinesthetic
Excellent	Low	Excellent	Advanced	Kinesthetic
Excellent	Intermediate	Low	Advanced	Kinesthetic
Excellent	Intermediate	Acceptable	Advanced	Kinesthetic
Excellent	Intermediate	Excellent	Advanced	Kinesthetic
Excellent	Fast	Low	Advanced	Kinesthetic

Excellent	Fast	Acceptable	Advanced	Kinesthetic
Excellent	Fast	Excellent	Advanced	Kinesthetic

Table 3 represents only a first proposal to manage the complexity level of learning materials and the learning style, but actually the user profile and the learning process involve a broad set of factors, some of them can have precise values, but others don't have exact values and states. Based on this, we would have to decide what type of uncertainty techniques we need to use for managing that level of knowledge about the user profile and the learning progress. In (Kasabov, 1996; Konar, 2000; Netnevitsky, 2011) uncertainty reasoning principles and techniques are presented that should be considered in order to select the appropriate techniques.

In (Netnevitsky, 2011) is stated that *uncertainty* is the lack of exact knowledge that would enable us to reach a perfectly reliable conclusion. In this context, *approximate reasoning* is a process of interpretation of knowledge in a presence of uncertainty in a form of vague and contradictory knowledge, incomplete past data, uncertain new facts, not clear goals, etc. (Kasabov, 1996). In (Konar, 2000) is stated that in the presence of forms of inexactness of data and knowledge, the following methodologies are suggested: (1) *probabilistic techniques*, (2) *certainty factor-based reasoning*, and (3) *fuzzy techniques*. As is stated in (Kasabov, 1996), different representation schemes influence the type of approximate reasoning techniques that can be used. Examples of representation schemes are: simple fuzzy rules, weighted production rules, and generalized fuzzy production rules.

6. Conclusions and future work

In this paper we have presented a general view of how to orchestrate an adaptive intelligent tutoring system, respecting the architecture of traditional tutoring systems, but emphasizing the inclusion of an integral user profile, which considers the majority of the human user characteristics: cognitive, emotion, affective, sensory, demographic, experience, physic, and psychological. This integral user profile facilitates the implementation of the intelligent modules and the user interface in order to have a more adaptable tutoring system.

We have introduced a new perspective for the user profile, which includes all the user characteristics that take part in the learning process. This perspective differs from previous research because they don't precise a specific set of characteristics and attributes of the user.

Even though by the moment we developed a prototype, we are working on the construction of a complete system, implementing the intelligence for each model as intelligent components in the AITS architecture.

Our future work is divided in different topics, but they are strong related as we can see in the following description:

Tutor-ability model. Taking advantage from our expertise in measuring learnability in software systems and also in videogame systems, we are defining a set of factors and properties for integrating a tutor-ability model. In educational contexts, students like to feel that they are making progress; they like to feel that they are learning and mastering new knowledge and skills. Based on this, in terms of teaching, we can define tutor-ability as *the capacity of an ITS for facilitating learning and mastering new knowledge and skills*. Towards integrating a set of attributes for defining tutor-ability, we have adopted some factors and properties from the playability model exposed in (González, Padilla & Gutiérrez, 2009). We considered that the factors presented by the playability model proposal are very related with the type of tutoring systems we are looking for because it is a good challenge to adapt learning materials to games features, such as immersion, motivation, emotion, and so on.

Tutor-ability metrics. Taking advantage from our expertise in software metrics, we are integrating a set of metrics to assess the capacity of ITS to assist learning process and students progress.

Natural language processing. In order to attend the necessity of integrating dialogue and feedback capacities, we are considering including the capacity of using text-based questions from the learner to the system. This capacity will be implemented adopting our past proposal (Huertas, Juárez-Ramírez, Gomez-Ruelas & Plata,

2011; Huertas & Juarez-Ramirez, 2012) for the treatment of structured texts, but extending this capacity to non-structured texts in order to make more flexible the interaction between the learner and the system. In addition, following this approach we are planning to integrate speech-based dialogue.

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4th International Conference on New Horizons in Education

Parental influence on students' mathematics achievement: the comparative study of Turkey and best performer countries in TIMSS 2011

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Abstract

This paper assessed the impact of students' background and parents' attitude towards their children on mathematics achievement across four countries which were participated to Trends in International Mathematics and Science Study (TIMSS) 2011. Since Republic of Korea, Singapore and Chinese Taipei were ranked as the first three countries in terms of the achievement in mathematics scores, they were selected for the comparison with Turkey. Multilevel logistic regression model was used to estimate coefficients and to model differences in mathematics achievement within and between schools for each country. Gender, student-parent relationship, possessions of computer, room and internet were taken as student level variables, while school composition by student economical background, discipline and safety of school climate were taken as school level variables. According to results, owning a desk was the most effective factor on achievement of students for both Turkey and Republic of Korea, at the student level. Furthermore, at school level, the most effective factor on achievement was found the school composition by student economical background for all countries.

Keywords: mathematics achievement, TIMSS 2011, multilevel modeling, student-parent relationship

1. INTRODUCTION

Turkish educational system has modern, secular, democratic and co-education characteristics. Educational reforms in Turkey have been developing slowly. These reforms are included changes in structural and curriculum program. After having negotiations with European Union in 2004, Turkey has applied various reforms in curriculum program for accomplishing educational targets of European Union. Turkey should develop some strategic plans to increase the performance of education system and these plans should contain not only national but also international strategies. Besides national assessment studies were done in educational field, it was a need of educational indicators to locate at the international level. Turkey was involved in some projects such as Programme for International Student Assessment (PISA), Trends in International Mathematics and Science Study (TIMSS) and Progress in International Reading Literacy Study (PIRLS) to improve the educational level of other participating countries.

International assessment studies reflect many comparative surveys among countries pertaining to educational achievement. These assessments are concerned with the study of mathematics, reading and science. Mathematics is one of the fundamental lessons that used in everyday life and associated with other lessons, that's why we

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focused on mathematics in this study. Mathematics has become increasingly important and has been taken up at the highest level in educational field.

In this study, we compared the effects of students' background and parents' attitude towards their children on mathematics success across four countries; Republic of Korea, Singapore, Chinese Taipei and Turkey. It was shown considerable variation in the countries by using explanatory variables.

For this purpose, the research questions can be designed as follows:

- 1) How the variability in the mathematics achievement of eighth grade students is distributed within and between schools for each country?
- 2) Are the student and school factors influencing mathematics achievement in all countries?
- 3) To increase the mathematics success of Turkish eighth grades, what changes should be implemented?

2. Data and Method

2.1. Data

We use the Trends in International Mathematics and Science Study (TIMSS) which is an international assessment of student achievement in mathematics and science. The study conducted by the International Association for the Evaluation of Educational Achievement (IEA) in 1995, 1999, 2003, 2007 and 2011. The target population in TIMSS 2011 was fourth and eighth grades, teachers and school administrators. This data comprises for 63 countries and 14 benchmarking participants. The main purpose of TIMSS is to measure and improve teaching and learning abilities in mathematics and science. Furthermore, the internationally comparable results provided by TIMSS allow countries to determine how well eighth grades are prepared for life.

2.2. Sample

The sample for this study was restricted to four countries - Republic of Korea, Singapore, Chinese Taipei and Turkey - which participated in TIMSS 2011. This restriction was implemented to make comparative research for countries with a high level of success and Turkey.

According to the findings from TIMSS 2011, Republic of Korea (613), Singapore (611) and Chinese Taipei (609) were the top-performing countries at eighth grade students, respectively. The scores in parenthesis show the mean math score of students in these countries. Mathematics success of Turkey (452) was below the average success (500) of TIMSS 2011.

The sample design is structured for two-level system; students as level-1 and schools as level-2. The study involves 6077 eighth grades nested within 218 Turkish secondary schools, 4789 eighth graders nested within 139 Korean secondary schools, 5544 eighth graders nested within 155 Singaporean secondary schools and 4737 eighth graders nested within 143 Chinese secondary schools after deletion of missing data.

2.3. Variables

Mathematics Achievement (outcome): The mathematics assessment for TIMSS 2011 was designed along two dimensions: content (number, algebra, geometry, data and chance) and cognitive skills (knowing, applying and reasoning) (TIMSS, 2011). Students were taken as “unsuccessful” if their mathematics score was below the average mathematics score of each country; otherwise they were taken as “successful”.

Student level variables (predictors): Gender (G), the possession of computer (C), desk (D) and internet (I), the frequency of the student’s relationship with the family about school were obtained from the students’ questionnaires. Four items, to measure parents’ interest about their children’s schoolwork, were included in analysis. These items were described as follows:

- (P1) My parents ask me what I am learning in school
- (P2) I talk about my schoolwork with my parents
- (P3) My parents make sure that I set aside time for my homework
- (P4) My parents check if I do my homework

School level variables (predictors): School composition by student economic background (SES) and discipline-safety (DS) were derived from the school principal’s questionnaire. They were used to explain school level variance in mathematics achievement.

2.4. Method

Multilevel models applied to clustered or longitudinal data, repeated measures with observational units at one level nested within units at other levels in social and educational sciences. The samples are taken from high level units firstly and then from the sub-units (Heck and Thomas, 2000). Multilevel models are also known as hierarchical linear models or random coefficient models.

Multilevel logistic models do not require any assumptions, such as linearity, normality, independence of residual terms and homogeneity of error variance. We consider multilevel logistic models as special case of multilevel model for binary outcomes with a Binomial sampling model and logit link function (Raudenbush and Bryk, 2002). Since students are nested within schools for each country, we constructed hierarchical structure and used R software for the implementation.

Level 1: Student Level

The model we estimated was

$$Y_{ij} = \beta_{0j} + \beta_{1j}(G) + \beta_{2j}(C) + \beta_{3j}(D) + \beta_{4j}(I) + \beta_{5j}(P1) + \beta_{6j}(P2) + \beta_{7j}(P3) + \beta_{8j}(P4) + e_{ij} \quad (1)$$

where β_{0j} is the average outcome in school j , e_{ij} is the error term for student i in school j .

Level 2: School Level

The level 2 model is then

$$\beta_{0j} = \gamma_{10} + \gamma_{11}(DS) + \gamma_{12}(SES) + u_{0j} \quad (2)$$

where γ_{10} is the average intercept in level two unit j . u_{0j} is the error term for school j (Hox, 2002).

3. Findings and Results

Republic of Korea, Singapore, and Chinese Taipei were top performer countries in TIMSS 2011 study. Thus, the similarities and differences in students’ achievement across countries were tried to explain by using a two-level model. For this study, the students’ achievement in mathematics, students’ and school principals’

questionnaires were used. Since data had a hierarchical structure: observational units at one level were nested within units at other levels, multilevel models were preferred.

The percentage of variables for each country was shown in Table 1.

Table 1. Percentage of variables

			Turkey	Republic of Korea	Singapore	Chinese Taipei
Dependent Variable	Mathematics success	Below country average	51%	48%	48%	44%
		Above or equal country average	49%	52%	52%	56%
Level 1 Variables	Gender	Male	50%	47%	51%	52%
		Female	50%	53%	49%	48%
	Computer	Yes	59%	99%	97%	97%
		No	41%	1%	3%	3%
	Study Desk	Yes	66%	96%	89%	88%
		No	34%	4%	11%	12%
	Internet	Yes	46%	97%	96%	93%
		No	54%	3%	4%	7%
Level 1 Variables	My parents ask me what I am learning in school	Every day or almost every day*	54%	20%	24%	27%
		Once or twice a week	28%	40%	38%	32%
		Once or twice a month	9%	23%	20%	21%
		Never or almost never	9%	16%	18%	21%
	I talk about my schoolwork with my parents	Every day or almost every day*	51%	19%	22%	20%
		Once or twice a week	30%	36%	33%	28%
		Once or twice a month	10%	28%	22%	25%
		Never or almost never	9%	17%	23%	28%
	My parents make sure that I set aside time for my homework	Every day or almost every day*	61%	8%	41%	36%
		Once or twice a week	23%	18%	29%	21%
		Once or twice a month	7%	22%	14%	15%
		Never or almost never	8%	52%	16%	28%
My parents check if I do my homework	Every day or almost every day*	32%	15%	19%	26%	
	Once or twice a week	29%	22%	23%	17%	
	Once or twice a month	12%	21%	16%	14%	
	Never or almost never	27%	43%	41%	43%	
Level 2 Variables	Discipline and Safety	No problem	24%	36%	50%	64%
		Fever problem	49%	52%	50%	35%

	Lots of problem	26%	11%	0%	1%
School Composition by Student Economical Background	Disadvantages	61%	29%	13%	13%
	Neither Affluent nor disadvantages	25%	51%	61%	68%
	Affluent	14%	20%	26%	19%

* Reference category

As it can be seen in Table 1, there was no significant difference within country in terms of the percentage of mathematics success. While the rates of computer, internet and study desk possession in top performer countries were between 88% and 99%, they were between 46% and 66% in Turkey. We put emphasize on students' own study place and instruments of information technology since the proportions of not having these variables are much lower in Turkey compared to other countries. In addition, Turkish parents were interested about their children's schoolwork every day or almost every day. In general, most of Turkish students felt unsafe at school and had lower socioeconomic families than other countries.

Based on TIMSS 2011 dataset, the following research hypotheses were tested through the use of multilevel logistic regression model:

1. Male students outperform female students in mathematics achievement.
2. The possession of computer was a factor that increase students' mathematics achievement.
3. The possession of internet was a factor that increase students' mathematics achievement.
4. The possession of study desk was a factor that increase students' mathematics achievement.
5. The higher rate of parents interest in students' schoolwork, the higher their score in mathematics.
6. Students who feel safe in school were more successful in mathematics.
7. Students from higher socioeconomic status families achieved a higher score in mathematics than others.

Table 2 presented the results of multilevel logistic regression analysis for each country.

Table 2. Results of multilevel logistic regression analysis

HLM Output		Turkey	Republic of Korea	Singapore	Chinese Taipei
Intercept		-1.0312***	-1.2157**	-2.8790***	-0.8080**
	Gender (Male)	0.2781***	0.2386***	0.1680*	0.1146
	Computer (Yes)	0.3424***	-0.8146*	0.8521**	0.5364*
	Study Desk (Yes)	0.5344***	0.8546***	0.7629***	0.2918**
LEVEL-I	Internet (Yes)	0.1766*	1.5054***	0.6687**	0.0707
	My parents ask me what I am learning in school				
	Every day or almost every day ^a	-	-	-	-
	Once or twice a week	0.0492	-0.2393*	0.2873**	-0.2752**
	Once or twice a month	0.0534	-0.2286*	0.3384**	-0.1029

	Never or almost never	0.1852	-0.1311	0.6653***	-0.2302
	Every day or almost every day ^a	-	-	-	-
I talk about my schoolwork with my parents	Once or twice a week	-0.3454***	-0.2458*	-0.0501	-0.2945**
	Once or twice a month	-0.4106***	-0.5531***	-0.2573*	-0.5123***
	Never or almost never	-0.7505***	-1.0041***	-0.4231***	-0.9375***
	Every day or almost every day ^a	-	-	-	-
My parents make sure that I set aside time for my homework	Once or twice a week	-0.3591***	-0.0672	-0.1668*	-0.0538
	Once or twice a month	-0.4174***	0.0249	-0.2668*	-0.1801
	Never or almost never	-0.5241***	0.0193	-0.2059	-0.1760
	Every day or almost every day ^a	-	-	-	-
My parents check if I do my homework	Once or twice a week	0.4446***	-0.0963	0.0765	-0.2057*
	Once or twice a month	0.7945***	-0.0503	0.1893	0.0640
	Never or almost never	0.8915***	-0.2036	0.2587*	0.3188***
LEVEL-II	Discipline and Safety (negative scale)	-0.2350**	-0.1043	-0.6261**	0.0149
	School Composition by Student Economical Background	0.5176***	0.5303***	0.8674***	0.6856***
Model Fit	AIC	7275	6213	6173	5915
	BIC	7443	6375	6338	6077
	Log Likelihood	-3613	-3082	-3061	-2933
	Deviance	7225	6163	6123	5865

^a Reference category, *0.05, **0.01, ***0.001

Gender difference had a statistically significant effect on mathematics success in all countries, except Chinese Taipei. It was shown that boys outperformed girls in Turkey, Republic of Korea and Singapore. Besides, the largest difference between two genders was in favor of girls in Turkey. Boys were about 1.32 ($e^{0.2781}$), 1.27 ($e^{0.2386}$) and 1.18 ($e^{0.1680}$) times greater than girls in mathematics success in Turkey, Republic of Korea and Singapore, respectively. Also, it was stated that gender variable was a positive influence on students' mathematics achievement in the literature (Ayalon and Livneh, 2013; Else-Quest, Hyde and Linn, 2010). In fact, this study was consistent with previous studies.

Although computer possession of students in Republic of Korea had the highest percentage among all countries, it had a negative impact (2.25 times lower) on mathematics achievement unlike the other countries. Furthermore, the possession of internet had a significantly positive effect (about 4.5 times higher than non-internet users) on mathematics achievement in Republic of Korea. These results were shown that students from Republic of Korea use internet for schoolwork, but they do not use their computer just for internet. They probably use it for playing games, listening music etc. Although the possession of computer has a positive impact on mathematics success in all countries, except Republic of Korea, the possession of internet had not statistically significant impact on mathematics achievement in Chinese Taipei.

Study desk was one of the most important factor that affecting mathematics achievement for all countries. Students who have an own study desk were about 1.7, 2.3, 2.1 and 1.3 times greater than others in mathematics achievement in Turkey, Republic of Korea, Singapore and Chinese Taipei, respectively. Consequently, the most important student background factors were found to be the possession of computer in Singapore and Chinese Taipei, in Turkey it was study desk, in Republic of Korea it was internet.

Parents attitudes towards children about schoolwork were taken into consideration in this study. It was composed of four attributes: to ask what he/she learnt at school, to talk about schoolwork, to make sure that he/she set aside time for homework and to check if he/she did his/her homework. As it was seen that parents behaviour separated into two basic attributes which were about schoolwork and homework.

In Turkey, most of the parents were asked their children what they learnt in school, but it was not an important role in mathematics achievement. However, students whose parents talk about schoolwork everyday or almost everyday, were more successful than others. In other countries, asking what children learn and talking about schoolwork had statistically significant effect on mathematics achievement. In Republic of Korea and Chinese Taipei, students whose parents ask what they learn at school everyday, were more successful than other students. On the other hand, the parents frequently asked what they learn at school has a negative effect on the mathematics achievement of students in Singapore.

Parents attitudes towards children's schoolwork and homework were other issues in mathematics achievement. Children behaviour was different from country by country in these issues. For example, the frequency of making sure that children set aside time for their homework was not important factor for achievement in Republic of Korea and Chinese Taipei, but it was important for students from Turkey and Singapore. Another issue was to check their students if homework was done. Turkish and Singaporean students whose parents check if they did their homework everyday, had lower score in mathematics than other students. However, in Republic of Korea and Chinese Taipei, students whose parents did not frequently check if they did their homework, were more successful than other students.

Mathematics scores were also associated with school climate. There was evidence for a negative effect between achievement and school safety (Thomson, Hillman and Wernert, 2012). Moreover, students who feel safe at school from Turkey and Singapore were more successful than others. In this study, discipline and safety of school and school composition by student economical background were tested whether they had a statistically significant effect on mathematics achievement. For all countries, students from higher socioeconomic status families achieved a higher score in mathematics than others (Kılıç, Çene and Demir, 2013).

The intraclass correlation coefficient is (ICC) an indicator of between-group heterogeneity or within-group homogeneity. It represents the proportion of group-level variance in total variance. The estimated ICC can be used to evaluate between group heterogeneity in multilevel logistic regression models. This coefficient is similar to Pearson correlation which is used to measure the association of two variables.

The variability in mathematics achievement by eighth graders was modelled as a function of student- and school-level factors in four countries. In Turkey dataset, we can see that the school level variance estimate was 0,642 and for the logistic regression model, the student level variance component was $\pi^2/3=3,289$. The intraclass correlation coefficient was $0,642/0,642+3,289=0,1633$. This percentage of the variability in mathematics achievement was accounted for by the school-level differences and remaining variation was at the student level. It showed a moderately large between-school heterogeneity or within-school homogeneity and the variance of the school level was statistically significant. Thus the multilevel model should be applied to this data (Wang, Xie and Fisher, 2011). The school-level variability of total variability was about 37,79%, 1,89% and 14,25% in Singapore, Republic of Korea and Chinese Taipei, respectively.

4. Conclusions

Our results show that this study may open a new angle in the investigation of gender inequality, students' background and parents attitudes toward children in mathematics achievement. Moreover, it was revealed that there were some factors affect mathematics achievement in a negative way such as internet and computer use, socio economic and cultural status in Turkey. Also it was showed that similiar factors affected students' achievement for all countries, so Turkey should create better strategies which were used to increase the performance of education system. There should be more studies for future comparative study on students' background and parents' attitude towards their children in mathematics achievement.

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Parenting education: which intervention model to use?

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Abstract

This paper displays a panorama of diverse parenting education models used internationally. The paper reviews these parenting education models by using a general analysis framework: 'Intentions Mediations Tools Effects' (IMTE) designed by Sellenet & Weil-Barais (2008). This framework, which we describe in detail in our paper, has allowed us to make comparative analysis of the parenting education models we present here. We conclude the paper with a synopsis of different aspects of each parenting education model in relation to the analysis framework we have used. In this final section, we also discuss the normativity issue in educational programs in general.

Keywords: children, parenting education, educational programs, intervention models, parents

1. Parenting education: A recent development which has an ancient history

It has been widely accepted that the family milieu plays a significant role in children's development (see the synthesis offered by Pourtois & Desmet, 1989; Montandon & Sapru, 2002). In psychology, the ecological theories of development (e.g. Bronfenbrenner, 1986) have placed emphasis on the role played by the microsystem which is composed of persons who take care of the child, as well as the interaction of this microsystem with other systems in which it is situated. It has been demonstrated that the way in which parents exercise their roles has an impact on the child's development and his/her school success (Tazouti, Flieller & Vrignaud, 2005 ; Dearing et al., 2006 ; Lahaye, Pourtois & Desmet, 2007 ; Spoth, Randall & Shin, 2008).

A great deal of research has attempted to identify characteristics of different intervention methods and approaches used by parents that induce favorable child development not only at physical, but also at cognitive, emotional and social levels (e.g. Barocas et al. 1991; Steinberg et al., 1992; Martin, Ryan, & Brooks-Gunn, 2007). The idea of training parents explicitly by using '*best practices*' emerged in the United States in the 1970s. These parenting practices were based on scientific observation and stressed that certain types of parenting practices were more favorable for child development. The concepts of parenting and parenting education took shape in this particular context during a period when behaviorism reigned supreme. This theoretical framework, which employed stimulation and reinforcement methods through which children were used as subjects, was severely criticized and called into question. It was during this period that the term "program" referring to parenting education practices came into use.

Although initially parenting education programs concerned mainly 'at risk' families, today the interest in parenting education programs is widespread on a global scale (Pourtois & Desmet, 1997). This growing interest

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is related to the bewilderment that today's human societies are experiencing, and it is the consequence of the internationalization of communication and technological developments. In the face of emerging and evolving situations, families often feel helpless and their immediate environments do not always offer models to provide them with satisfactory answers. Moreover, internationalization asserts some values that are perceived as righteous (e.g. gender equality, respect for the child etc.) and societies adapt to reconcile new ways of thinking. At present, parenting education programs seem to be the remedy to these individual or societal changes and demands. Today, as well as answering some common needs concerning all families, parenting education programs aim to respond to the specific needs of disabled children, intellectually-gifted children, children with behavioral disorders, and children with specific diseases, without excluding the needs of families with abusive, deficient or pathogenic parents.

A range of terms is used to refer to this field of social practices which aim to optimize conditions for the healthy development of children through the involvement and interventions of parents. In France, Pourtois (1984) and Terrisse (1997) introduced the term 'Parenting Education' (*Fr. Education Parental*). Durning (1995), alternatively, suggested the term 'Parenting Training' (*Fr. Formation Parental*). We opted for the term 'Parenting Awareness' (*Fr. Sensibilization Parental*) considering parenting support practices as a means of raising awareness in parents rather than educating them in something they are capable of doing on their own using their own personal skills and resources (Ailincai & Weil-Barais, 2006).

The disparities in terminology are in fact due to diverse intentions (objectives) such as: a) to help parents to fulfill their educational potential by developing a sense of competence and by making best use of the resources in their environment (Terrisse, 1997); b) to increase awareness of parents by improving their ability to understand; c) to help parents acquire know-how skills; d) to anticipate consequences of parental behavior (Durning, 1995) and so forth. These terms also refer to quite different conceptualizations. Indeed this field of practice is situated in the tension between training and self-development that requires an active involvement of participants in their development and does not only refer to the actions exercised by trainers/educators.

The situation concerning parenting education in France is particular. Unlike the North American context, French universities have scarcely invested in practices in social sciences, thus research in this area is not well-established. In addition, the notion of the parenting education 'program', which is widespread in English-speaking countries, is not well received in France. The concept of 'parenting education program' is often associated with the idea of deficiency in parenting skills and normative ideas in educational practices. In France, parenting education exists in rather singular forms as part of association activities such as the *École des Parents et des Éducateurs* and the *Maison Verte* (Mozère, 2000).

Initially, the assessment of the impact of parenting education programs was rather holistic. Today, assessment procedures are replaced by studies that aim to identify factors influencing the effectiveness of such programs, both in terms of intervention practices and the people involved (Cunningham et al., 2000; Sanders & Woolley, 2005; St.Pierre, Ricciuti & Rimdzius, 2005; Webster-Stratton, 2005; Hindman et al., 2008; Mendez, 2010). Today the emphasis is more on the question of identifying factors influencing the quality of these programs. It should be noted that, in addition to technical factors (e.g. duration and frequency of interventions, intervention tools/techniques used etc.), factors inherent in human relations such as mediation are now taken into account (Gross et al., 2003; Pourtois & Desmet, 2004).

2. Description of the IMTE general analysis framework

In this paper, we present an overview of various parenting education models. All of these models, either training or education ones, are viewed under the label "parenting education". Our overview is based on a general analysis framework developed by Sellenet and Weil-Barais (2008) which is called 'Intentions Mediations Tools

Effects' (henceforth IMTE). IMTE is used to describe educational intervention systems by looking into the intentions, the mediation types and tools used and, finally, the effects the interventions have produced (Sellenet & Weil-Barais, 2008).

2.1. Intentions

The initial intentions of parenting education program designers are manifold: to inform (e.g. about child development, intra-family conflicts, family assistance, etc.); to prevent problems (e.g. bedwetting, eating disorders, aggression, learning disabilities etc.); to prevent risk behavior (e.g. addiction and drug abuse); to help parents cope with difficulties (e.g. especially in the case of atypical children); to support parents in parental duties; to improve family relationships or to modify parenting behavior (e.g. especially in the case of abusive parents).

For the last decade, 'change' in parenting education has constituted the key element. The issue of 'change' was addressed in particular during the sessions of the International Association of Training and Research in Family Education (IATRFE) (2005). This issue, which appeared to be resistance to change on the part of parents, prompted researchers to wonder about the real needs of parents and the type of support they might need (Pourtois & Desmet, 1997).

2.2. Mediation

Mediation refers to the strategies and human resources deployed to achieve intentions. The concept of mediation used in parenting education presumes that consideration be given to parents (e.g. their views, intentions, expectations, interests, values etc.). That is to say, there is a preliminary negotiation of the objectives and the means to achieve them, which was not intended in the programs inspired by behaviorism. In fact, mediation is a suitable concept to describe an intervention method which grants a central place to the participants (to the actors) and bases its interventions on the quality of interactions.

The parenting education models that we have consulted use many different forms of mediation such as: home visits by trained professionals during which parents are invited to explain and discuss their problems in order to find a solution; meetings with more experienced parents; discussion sessions between parents in the presence of a facilitator; role plays; educational games and so forth.

Besides these presential types of mediation, there are also mediation forms at a distance such as call services, television series on parenting and so forth. Since the arrival of the Internet, innovative forms of mediation have also been developed (e.g. online chats, discussion forums, training platforms etc.). Through these tools, parents have developed different forms of mediation initiated by, and used, among parents themselves. The creation of these parent-initiated forms of mediation suggests that parenting education is eluding the influence of institutions.

2.3. Tools

Tools relate to materials and material means that are used in training. Today, there are diverse forms of tools that continue to increase with the onset of the Information and Communication Technologies in Education (ICTE). In addition to traditional written materials (e.g. informational texts, tip sheets or exercises, case reports with their resolutions etc.), drawings, comic strips and films featuring different situations are also used as tools. CD-ROMs have also been developed with hyperlinks allowing users to move back and forth between consultation of explicit situations with pictures, explanations or advice.

2.4. Effects

The effects refer to the outcome obtained from the parenting education intervention. In general, the effects of parenting education interventions are assessed in relation to the original intentions, although there is not necessarily a one to one relationship between the two. For example, facilitators generally expect to see from the effects a change in parents' experiences and their ability to act in an appropriate way. What questions the levers of change, however, is that evaluations suggest that parents can learn without changing their behavior.

In general, the specification of the expected effects at the planning stage is at the heart of the evaluation process of parenting education interventions. Identifying indicators of these effects is essential, however not to the extent of influencing the practices themselves, which is always a risk in education. Indeed, the best way to obtain something is not always to require it, since demanding it could provoke resistance from the participants who might feel deprived of their free will, or even feel their personal identity and culture is being attacked (e.g. especially in the case of parents with different cultural backgrounds).

3. Characterizations of some parenting education models

The parenting education models we present here differ from one another depending on: a) the type of parent commitment (i.e. voluntary, incentive, imposition); b) the child's age (i.e. perinatal period, infancy, childhood, adolescence) and c) the child's particularities (i.e. typical children or children with sensory or mental disabilities, gifted children, etc.). We believe that using an analysis framework to present parenting education models would be enlightening, since relevant literature does not provide us with an explicit description of standards that could be used in analyzing such programs.

As we noted in the introduction, parenting education models are numerous. In our presentation, we have made a review of research studies retaining only the studies that: a) are the most cited and most known to French scholars; b) have worked at a relatively large scale and have undergone external evaluation; and c) respect cultural diversity in so far as possible. These selection criteria have excluded programs that are under construction and without validation. We also excluded practices that have not been the object of research. In this paper, we have presented the parenting education models in chronological order in order to facilitate the identification of their evolution.

3.1. Parent Management Training Oregon Model - PMTO

The Parent Management Training Oregon (PMTO) model was introduced by Gerald Patterson and his colleagues at the Oregon Social Learning Center (OSLC) (Patterson, Cobb & Ray, 1973; Patterson, 1976, 2005). The PMTO model has been supported by more than thirty years of research on families with children and adolescents with severe conduct problems. The model uses clinical approaches and aims to prevent behavioral problems in children by enhancing knowledge, skills and confidence of parents.

Patterson and his colleagues identified five key parenting skills that have a positive impact on improving children's conduct problems:

- Encouragement: parents teach children new behaviors through the use of praise and incentives (not punishment);
- Limit setting: parents respond to the child's negative behavior by setting limits without having recourse to physical interventions;
- Monitoring and supervision: parents check the impact of their intervention on their child's behavior (at home and outside the home);
- Family problem solving: parents ensure that decisions are taken collectively, within the family;
- Positive parent involvement: parents give their children positive attention, genuine interest and caring.

The PMTO program interventions are aimed at helping parents with children between 3 to 18 years of age to build skills through the use of diverse activities (e.g. problem solving, role play, discussion activities etc.) (see Table 1). This model is based on the idea that parents present reference models for their children. Therefore the interventions in this model are designed to teach parents positive attitudes and behavior (e.g. not to smoke, to respond calmly, to observe before acting, not to hit etc.) that children are likely to imitate. The emphasis is put on the importance of the educational contract that regulates parent-child relationships. The solution proposed to problems assumes the consideration of such a contract, therefore helping its improvement. This program and the ideas underlying it were sources of inspiration for other major programs.

Table 1. Analysis of PMTO using IMTE

		Intentions	Mediation	Tools	Effects
Parent Training, USA	Management Patterson, 1973,	Helping parents to use five core parenting skills	Human mediation (e.g. direct observation, interviews, listening to family problems, problem solving, role-playing, behavioral counseling, etc.)	Questionnaires	Improvement of parenting skills
http://www.oslc.org					

3.2. Positive Parenting Program (Triple P)

The Positive Parenting Program (Triple P) was developed in Australia by Matt Sanders 25 years ago. The model has since been implemented in a dozen countries around the world and is now recognized internationally. This parenting skills learning program is designed to: 1) help parents learn effective management strategies to deal with diverse problems concerning the development and behavior of their children from early childhood to adolescence; 2) help parents learn new ways of interacting with their children and expressing their thoughts and feelings; 3) promote positive interactive routines that help children learn and help reduce parental stress.

The approach consists of improving parents' knowledge and skills so that they are able to better address the needs of their children and increase their confidence in their parenting skills. The intervention method used in this model draws on behavioral techniques. The approach is both explicit and practical enabling the effective management of problems encountered with children.

The Triple P model assumes that differing needs of parents necessitate different methods of assistance with varying degrees of intensity (Sanders et al, 2000). The program is based on a multi-level framework, which incorporates five levels of intervention of increasing strength (see Table 2). The interventions are implemented in a progressive intensity depending on the nature of the problem addressed. Thus, depending on the level, intervention strategies can range from provision of information (e.g. via tip sheets, videos and media-based parenting information etc.), to targeted interventions conducted by professionals who already have contact with families (e.g. public health nurses, childcare personnel, practitioners and home visitors). Interventions can also

vary from a simple information session (e.g. a briefing) to participation in a community program. The highest level of intervention provides intensive parent training which includes problem-solving activities and discussions related to particular difficulties encountered within the family (e.g. parental conflict, depression, violence, stress, etc.). Families can enter the Triple P system at any level. Upon completion of a particular level, they are not required to move on to a subsequent level.

Triple P draws upon diverse theories such as social learning, cognitive-behavioral theory and theories of development. The model also draws upon research conducted on risk and protective factors associated with the development of behavioral problems in children. According to the proponents of this program, parents' ability to use the techniques taught at the onset of problems in children would guarantee the effectiveness of the program which has indeed been demonstrated through twenty-five years of research and evaluation (Sanders, 2003; Sanders, Markie-Dadds & Turner, 2003; Matsumoto, Sofronoff & Sanders, 2010). In France, the *Parasole* association offers training for parents and professionals using Triple P.

Table 2. Analysis of Triple P using IMTE

	Intentions	Mediation	Tools	Effects
Positive Parenting Program, Sanders, 1980, Australia www.triplep.net	Level 1: Informing parents about resources available to help them in their role as parents; encouraging parents to participate in prevention of developmental disorders of the child and to join a training program	Instrumented mediation (e.g. information campaigns on parenting, radio broadcasts etc.) and human mediation (e.g. telephone conversations etc.)	Television, print, electronic mailing, telephoning	Program membership
	Level 2: Preparing parents to cope with daily problems (e.g. eating problems, toilet training, bedtime problems etc.)	Human mediation [e.g. group seminars; individual consultations (20 minutes) by phone or face to face with a clinician etc.].	tip sheets, videos, leaflets	Improvement of parenting skills (e.g. solving everyday problems etc.)
	Level 3: Preparing parents to deal with specific problems (e.g. anger, rivalry among children etc.)	Human mediation (e.g. consultation with practitioners, telephone counseling, monitoring the evolution of the family etc.)	tip sheets, videos	Improvement of parenting skills (e.g. solving specific problems etc.)
	Level 4: Preparing parents to deal with behavioral problems (e.g. aggression, rejection etc.)	Human mediation (e.g. individual and collective - observation and reflection on parenting, written self-assessment etc.)	Videos, written documents	Improvement of parenting skills and maintenance of parental motivation
	Level 5: Supporting families whose children have behavioral problems caused by dysfunctional family situation (e.g. parental depression, parental stress and parental conflict etc.)	Face-to-face human mediation (e.g. therapeutic interaction, analysis of progress, discussions etc)	Written documents	Improvement of the ability to manage mood swings and stress; obtaining spouse support (e.g. for parents at risk of abusing their children)

3.3. *The Incredible Years: Parents and Children Training Series*

The Incredible Years is a comprehensive program developed by Carolyn Webster-Stratton (1981) for parents and teachers. The program has been translated into several languages and used in different countries (e.g. Korea, New Zealand, Great Britain and Norway). It aims to develop and strengthen parenting skills so that parents are able to understand their children and deal with their conduct problems (from birth to adolescence). Interventions are guided by a conception of development that emphasizes the important role of risk and protective factors related to people and their environment in a systemic perspective.

The training of parents consists of a series of interventions that focus on strengthening parenting skills (e.g. monitoring, positive discipline, confidence etc.). Real life situations are used to help parents acquire socially-acceptable parenting behavior (e.g. setting limits verbally rather than spanking etc.).

The program consists of sub-groups which are organized according to the age of children: infants and toddlers (0-3 years), early childhood/preschool (3-6 years), school age (6-12 years), advanced parent program and parenting training focusing on children's education (4-12 years) (see Table 3).

According to the research conducted by the Webster-Stratton research team, young children with high rates of aggressive behavior are at greater risk of conduct problems such as dropout, delinquency, substance abuse and violence. This is why the main goal of parenting training is to prevent and reduce the frequency of aggressive behavior and opposition. By way of example, we indicate some short-term goals regarding parenting skills:

- Improve the quality of care provided to children;
- Reduce physical and verbal violence towards children;
- Improve communicative and emotion management skills of parents ;
- Increase family involvement in educational networks;
- Help parents and teachers work together to improve educational settings;
- Increase parents' involvement in their children's education;
- Reinforce appropriate behaviors and social skills through games (e.g. taking turns, sharing, supporting, complimenting, etc.).
- Teach strategies of self-control;
- Increase the capacity to recognize, monitor and communicate emotions;
- Stimulate academic achievement, reading and interest in school;
- Reduce inappropriate behavior (e.g. expressions of contempt, aggressive behavior, peer rejection, bullying, stealing, lying, etc.)
- Increase self-esteem and self-confidence.

Each series in the program includes a variety of tools such as a huge handbook containing an assortment of situations that provide parents with examples and advice with the help of videos showing parenting skills that are favorable for child development, tip sheets and discussion materials, stickers, refrigerator notes mentioning things not to forget, posters with the program structure and target skills.

Parents involved in the Incredible Years programs are grouped according to the age level of their children and take part in group-work activities which help parents exchange ideas and participate in discussions in the presence of an expert. The expert ensures that parents are attentive to the know-how necessary for the proper development of their child (e.g. providing the child with physical, tactile and visual stimulation). The development of parents' know-how skills is guaranteed by exercises and activities of increasing complexity. The progress in the program depends on the successful completion of these activities and a particular emphasis is

given to the observation of the children's behavior. The aspects related to sociability as well as self-control are valued from the perspective of social welfare and personal development.

Table 3. Analysis of The Incredible Years using IMTE

	Intentions	Mediation	Tools	Effects
Incredible Years, Webster-Stratton, 1981, USA http://www.incredibleyears.com	Basic Training: Babies and very young children (0-3 years). Getting to know your baby ; understanding how to help babies feel loved and secure ; understanding how to encourage baby's development	Human mediation both collective (e.g. group work, brainstorming, debates etc.) and individual (e.g. home visits)	Books, DVDs, conversation card games, manuals, posters, tip cards, stickers etc.	Positive change in the quality of relationships between parent - child and children with their peers.
	Basic Training: Early childhood (3-6 years)			
	Establishing rules and promoting accountability; learning to manage misbehavior; helping children learn to calm and self-control etc.	Instrumented mediation (e.g. DVDs, conversation card games, manuals, posters, tip cards, stickers etc.).		
	Basic training: School age (6-12yrs). Using praise incentives effectively; Introducing rules and routines and promoting responsibilities			
	Advanced Training: (4-12 years). Improving interpersonal and problem solving skills; managing anger; giving and getting help			

3.4. *Helping the Noncompliant Child - HNC*

Helping the Noncompliant Child - HNC is a program designed and developed in 1993 by Robert McMahon and Rex Forehand (2003) in the United States (see Table 4). The program concerns parents and their 3-8 year old children with non-compliance and/or conduct problems. The long-term objectives of the program are to prevent juvenile delinquency problems resulting from adaptation problems at school. The short-term and intermediary objectives are to: 1) help parents modify their parenting styles in order to break out of coercive parenting styles and adopt practices based on negotiation (e.g. prosocial interaction); 2) improve parenting skills; 3) increase children's prosocial behaviors and reduce conduct problem.

Each program is composed of about ten sessions. Sessions are conducted with individual families. Both parents and children participate in these 60 to 90-minute weekly sessions in the presence of an expert or two who are educated in psychology. The presence of experts allows the effective implementation of role-play activities (e.g. one expert plays the parent's role, while the other expert the child's). Through these sessions, at the beginning, the know-how parenting skills are explicitly taught from demonstrations and role plays and later by using direct practice in real situations with the child at home.

The evaluation criteria for the short-term objectives of the program concern assessment of know-how practices within the family milieu. The evaluation criteria for intermediary and long-term objectives (with the help of longitudinal studies which can last between 2 months to 14 years after the intervention ends) concern the assessment of the transfer and the use of the mother's acquired parenting skills with her other children, the child's self-esteem, school learning, and parent-child relations. Using these abovementioned indicators, different aspects of the concerned person's development are assessed.

Table 4. Analysis of HNC using IMTE

	Intentions	Mediation	Tools	Effects
Helping the Noncompliant Child), McMahon & Forehand, 1981, USA	Establishing positive prosocial interactive styles ; Improving parenting skills	Human mediation (e.g. parent-child interaction mediated by one or two facilitators, games, monitoring progress etc.)	Video cassette, trainer's manual, books for parents	Decreased conduct disorders in children; Parents' improved perception of their children

3.5. Parenting Wisely

Parenting Wisely is a self-administered parenting education program. Computer based activities (e.g. DVDs, CDs, CD-ROMs and online applications) are used interactively to train parents. Donald A. Gordon (1979, 1998) originally designed and used the program in the United States (see Table 5). The Parenting Wisely program concerns mainly socially deprived and at risk families who have children from 9 to 18 years of age. Most of these families do not ask for any mental health therapy or parenting education programs to treat their children's conduct problems. A version of the program also offers parenting education for parents with young children (from the ages of 3 to 9).

This program was translated into French, adapted and distributed in Quebec and in France (both the manual and CD-ROM) under the name '*Etre Parent Aujourd'hui*' (Eng. Parenting Today) (Gordon, Terrisse & Pithon, 2003). The program offers parenting training on parent-child interactions with the solutions to problems with the help of an interactive CD/DVD with comprehensive critiques and explanations. The information included in the CD/DVD aims to help parents understand the advantages and disadvantages of permissive and authoritarian parenting styles. The message is to find the balance between the two parenting styles. The program draws on 'constructivist' theories and aims to help parents learn about the skills to develop in their children. The CD focuses on three general components that are postulated to help develop parenting skills:

- 'Knowledge' on the psychological development of children and the adolescents;
- 'Know-how' skills on how to act and solve problems in specific situations, due in part to this knowledge, but also out of habit. The skills learned are: how to assign responsibilities at home to each member of the family; how to effectively implement discipline avoiding repeated shouts and threats; how to develop educational contracts (from preadolescence) through which the child learns to express, negotiate and defend his interests while agreeing to the 'fact rules' designed with all members of the family;
- 'Being-skills' such as 'acceptance' of children, understanding and 'active listening' to the other.

Each component of parenting skills is illustrated using short video extracts of films that serve as examples. Basic definitions are given in a glossary. Parents and teachers are provided with hyperlinks to have quick access to different sections. Practical training exercises are also provided to assess the acquisition and application of these skills.

The theoretical viewpoints that influenced the creation of this parenting training CD are as follows: Social learning theories (Patterson, 1986; Mahoney and Patterson, 1992; Bandura, 1997); cognitive-behavioral theories developed by Beck (1976), Alexander and Parsons (1973); and current systemic that emphasizes the importance of relationships within and outside the family (Minuchin, 1974).

Studies conducted in the United States on the effects of this program have shown that the parents were satisfied that their knowledge of basic educational principles had improved. Furthermore, they maintained that they had more control on their parenting skills and could implement these skills in problematic family situations.

Table 5. Analysis of Parenting Wisely using IMTE

	Intentions	Mediation	Tools	Effects
Parenting Wisely, Gordon, 1998, USA	Improving knowledge, know-how skills and know how to be of parents and children (e.g. attitudes and ability to adapt new situations etc.)	Human mediation (e.g. interviews, role-playing, coaching etc.) and instrumented mediation (e.g. problem solving, performing exercises using tools etc.)	CD-ROMs, films, questionnaires	Improvement of parenting skills, mental state of the mothers, and intra-family relations (e.g. reduced conflicts and domestic violence), and child behavior (e.g. reduced criminal acts)

3.6. Krousar

The Krousar parenting education program was designed and developed in Cambodia by the E & D team (Child and Child Development) and the association Krousar Yoeung (created in 2002). The project was set up at the request of the Cambodian Government following a preliminary investigation into the "practices, beliefs, and values concerning parenting of young children in Cambodia". Parenting education was a new theme in a country that had experienced a destructive dictatorship. The preliminary investigations revealed that Cambodian parents suffered greatly from a lack of healthy parenting models that they could identify themselves with. In Cambodia, most adults between 25 and 35 years of age witnessed the destruction of their own family during the years of the Pol Pot regime. Therefore, they had difficulties in fulfilling the healthy parenting roles that are primordial in their children's education. In addition, the economic difficulties families were facing contributed to the weakening of the family milieu.

TV, as mass media, was selected as the main means to raise awareness in parenting skills (see Table 6). For this purpose, a television series entitled Krousar (meaning family), which depicted the parent-child relationship in a contemporary Cambodian family setting, was produced. Trained facilitators, through the distribution of the videotapes of the Krousar TV series and the use of role-playing, family debates and so forth, implemented parenting education in all Cambodian villages. The E&D project (2004) noted that television was a perfect tool which could reach a broad audience. It was also a perfect tool for transmission of norms and model behaviors and addressing various concerns without shocking parents in Cambodia. The topics covered took parents' beliefs and values into account concerning child rearing. The following are examples of some of the topics covered:

- parent-child relationships, parenting roles and attitudes;
- development and needs of the child (health care and hygiene, early intervention, early childhood developmental needs) and nutrition;
- behavioral control, discipline, parent-child communication;
- importance of play and everyday learning.

The "Krousar" series mobilized families around a common interest, the well-being of their children, and enabled exchanges and discussions in distant villages and between other communities in Cambodia. With the project entitled "Parenting and mothering support in rural areas of Cambodia," group sessions, along with more individualized support through home visits, were implemented. These individualized support activities were sometimes in the form of role-plays, card games and/or toy-making workshops. The project involved 106 facilitators and 847 families and continued in 2004 with rebroadcasting of the "Krousar" television series. In this phase, new activities and discussions between facilitators and families were introduced.

Table 6. Analysis of Krousar using IMTE

	Intentions	Mediation	Tools	Effects
Krousar, 2002, Cambodia	Promoting physical, psychological and moral development of children in Cambodia	Human mediation (e.g. discussion, role play, home visits) and instrumented mediation (e.g. watching movies)	Television series, games	Creation of a dynamic community around children, improvement of school success of young children and parenting skills of mothers

3.7. Parenting Awareness Model (PAM)

PAM is an intensive one-session intervention which was designed to sensitize ordinary volunteer parents in the context of doctoral research carried out by Rodica Ailincăi (2005). The initial model was implemented and evaluated in the context of a science museum, *Cité des Sciences et de l'Industrie (CSI)*, in Paris.

Overall, this model is designed for parents who supervise their young children in the discovery of knowledge. It aims to help parents assess their supervision practices and let these evolve according to the needs of the child. Initially, PAM intended to sensitize parents towards the use of most favorable behavior in the discovery of scientific knowledge in a science museum (PAM--science museum setting/science learning). Subsequently, the model was used in French Guiana. In French Guiana, the model was adapted to a home setting where parents helped their children do their homework (PAM--home setting/school content knowledge). Currently, PAM is used in French Polynesia to sensitize parents to support their children in learning the Tahitian language (PAM—Home setting/language learning).

What characterizes PAM is its effectiveness and strong impact on initiating behavior-change in parents in a very short period of time (an hour approximately). This one-hour session consists of moments of watching some short films of one-to-two minutes each (between two and five short films), followed by a panel discussion for about 50 minutes.

The discussions are organized by a facilitator and focus on parenting supervision practices viewed in films, which contrast greatly in terms of the parenting intervention styles used. The films were inspired by the actual parenting practices of the parents involved in these sessions (who were observed prior to the parenting education sessions) and the films were produced by using professional actors/actresses.

The educational challenge is to make parents aware of their own behavior with their children and to make them observe the influence their behaviors have on the actions of their children. In order to help parents identify the most effective intervention style based on the objective they have, discussions are oriented towards the analysis of non-verbal actions and verbal reactions of the children. This intervention model is based on the interactionist theory (Vygotsky, 1985; Bruner, 1983), cognitive-behavioral theory (Beck, 1976), eco-systemic theory (Bronfenbrenner, 1979) and social learning theory (Bandura, 1980).

Table 7. Analysis of PAM using IMTE

	Intentions	Mediation	Tools	Effects
General characteristics	Modifying the forms of supervision	Discussion between parents organized by a facilitator Duration: 1 h Group size: 5-10 people	Films with typical interaction sequences	Improved awareness of the importance of parental supervision and the relationship between the parent's behavior and the child's reaction; Decreased directive approach; Improved quality of exchanges (joint attention); Diversification of activities
Specific characteristics	Context - science museum setting /science learning (for children aged 3 to 5 years) - home setting/school content knowledge - home setting/language learning	<u>Principles of the discussion</u> Relationship between parenting and the child's behavior; Non-normativity; Sharing the floor; <u>Procedure:</u> watching a movie to initiate the debate; discussion between parents, mediated by a facilitator; <u>Role of the debate facilitator:</u> differentiation, identification and assessment of the discussion; not allowed to give any opinion or advice; managing turn-taking between the participants	Scenarios designed from existing interactive styles, contrasting (favorable/unfavorable) Duration: 3'20" Characters: actors	EVALUATION of expected effects Comparison of parent-child interactions before and after participation in the discussion session using the following criteria: - Content of dialogic exchanges - Interactive style of parents - Structure of exchanges - Objectives of tasks - Level of distancing
Preliminary studies	Study of 'spontaneous' parent supervision in a science museum exhibition context	Non	Evaluation of films (three contrasting groups)	Identification of interactive styles Development and evaluation of films in terms of their clarity

Different evaluations of PAM have illustrated that the behaviors of the participant parents had a marked evolution and that they adopted more individualized parenting styles after attending the PAM sessions. One of the strengths of PAM is the total absence of normativity in the parenting intervention sessions, which in other contexts proved to have been faced with resistance from parents. The other positive aspect of PAM is the presence of the parents' actual parenting behaviors in the films which helped the parents to identify themselves. The panel discussions helped the parents discover the most favorable parenting intervention style without feeling that they were being judged (even if the parenting behavior they observed in the film was identical to theirs).

4. Summary and discussion

The aim of this article was to present some parenting education models by using a general analysis framework (the IMTE model – Intentions, Mediation, Tools, Effects - Sellenet & Weil-Barais, 2008) in order to identify the general characteristics of each of these models and differentiate between their similarities and differences.

We note that in these models the intentions, although very different, are usually quite well defined. The theoretical foundations used in these models are diverse. They can be pragmatic such as in the 'Helping the

Noncompliant Child' model which is based on the analysis of the relationship between parents' parenting styles and the aggressive behavior in children. Parenting education models may also be based on ideological and moral grounds such as respect for others, equality, democracy and so forth. They can also have foundations in which they integrate cognitive and epistemological dimension as in PAM.

All (of the aforementioned) parenting intervention models more or less include a mediation instrument, although its nature and the specific methods of intervention are not always explained explicitly. The specification of the expected effects in operational terms is what is most lacking in the program descriptions of the aforementioned parenting education models. However, this specification is essential to evaluate the methods of intervention.

In recent debates in parenting education, the question of the normativity of mediation tools has often been at the center of criticism. During the presentations about PAM, in different congress, researchers were often questioned about the model's normativity (as if norms must necessarily be absent from any form of training). In PAM, the mediation is non-normative. The paradoxical aspect of PAM is that the intentions can be at times normative and non-normative. They can be normative in the sense that the parenting education interventions target parenting supervision skills required in the specific area of knowledge (e.g. science teaching, language teaching etc). They can also be non-normative because the parents have the flexibility to adapt their parenting supervision according to the needs of their children (e.g. parents need to have an analytic point of view to differentiate between different supervision styles and choose the one that they think is the best in their case). In fact, there is no education without norms and standards. From our point of view, the debate would be more explicit if all educators accept that there are norms to follow because education would not be possible without the sharing of norms and standards. Standards differ from one domain/context to another and we believe that such standards should be taken into account. The educational competence of any parent, like any other educator, should be naturally linked to related fields of knowledge and practices. Whatever the field (e.g. sanitary health, nutrition, social relations, reading, science, etc.) there are social and scientific norms. It seems to us that it is the ability of parents to share these norms with their children which lies at the heart of parenting education.

Generally, in the case of education, the key concern is the strategies and tools provided for the individuals so that they can take ownership of the standards. In a totalitarian system, they are imposed and it is recognized that individuals challenge these norms. Democratic systems offer an approach that we have adopted: conflicting information, debate and ultimately singular choices by individuals. From our perspective, it is important that parents volunteer to participate in such parenting education programs and they progress regarding the personal intentions they set for themselves such as to be 'good teachers' so that their children can succeed in society. We believe that it is possible to help parents interact with their children in a favourable way in order to prevent parents from inventing their own methods of parenting which could not always be adapted to their children's needs. In the cases when the parents' methods do not succeed, there is a risk that they withdraw from the relationship with their child.

In our opinion, the aim of parenting education should not be to minimize the creative potential of the parents; on the contrary, it should aim to help them use it better. It should be recognized that today both parents and educators are facing new situations (e.g. change of status and social roles, change in family structures, access to new types of media, etc.), and that society has a role to play in helping parents to educate their children. This comes down to the assumption that education is not a natural process and that it requires specific competence to be incorporated by educators. The informal nature of parenting education does not exclude the need for the acquisition of specific skills. However, there has not yet been research evidence to show a direct correlation between parents' involvement in their children's education and the academic achievement of children (Fan & Chen, 2001).

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4th International Conference on New Horizons in Education

Peace project from transdisciplinary dimension

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Abstract

This study deals with the guidelines and events arising from transdisciplinary research proposal confined to a project set within a framework of innovation and change, creator and generator of Peace, from the multiple disciplines considered are noted, the ongoing contributions to field of knowledge and learning in general. Various projects from each of their perspectives have been providing new data that allow us to reflect and bring different contexts and actors, new schemes impregnated for greater understanding and respect. The preliminary initiative arises from the participation of research in the field of intervention. Phase allowed us to refocus research targets at a greater range, originating well, new springs and streams to develop. Well considering the subsequent interaction that would be from the perspective of university academic setting, where it presents the findings and scopes made, as well as, the subsequent stages exhibited from the expansion that the same project of peace contemplates.

Keywords: Peace, transdisciplinary, education, innovation, change.

1. INTRODUCTION

Based on the international stage to approach gradually more immediate contexts, the issue of peace, has been the cornerstone in the development of societies, even though the subject has been treated in a cross, have been in the last decades in that attention to this topic has gained increasing relevance, considering also the posthumous periods of fighting, in which expected so the argument becomes a strong presence.

For authors like Monclús and Saban (1999), based on the recognition that peace is the highest priority for societies and the human race itself. Arguing, the need awareness about planning in general education from the perspective of the search and deepening peace (Monclús, 2008).

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Delgado (1998) argued that peace to be sustained on principles contained in the universal declarations of Human Rights, which represents the achievement recognition as well reaffirming humanity, and legitimizing their inherent rights as individuals, are shown as a crucial area in the various social structures that make up the community, where it is part of the relationship that lead each of its components such as the education sector, which far from being an isolated organism, is where should consider conducting constants for intervention actions in their environment.

Unesco also from (1997) exposed that to throughout life is necessary to establish a culture of peace and education for citizenship and democracy building and Restated educational content, so that is routed to the promotion of peace based on justice, tolerance, dialogue and negotiation.

Morin Meanwhile, in (2001), said that the peace education is related to the mutual recognition of the human and cultural diversity inherent in all that is human, which in turn can shape an integrated universal culture collectively with aspirations to solve the various challenges from the platform of justice.

So that the spectrum of action, in both conformation and accuracy for that a peace project acquires a greater clarity would be from the transdisciplinary appreciation.

In this perspective, peace education should not be limited only to the academic or institutional scheme, but rather in a broader sense in which society could converge person and the constant global development.

1.1 Conceptions of peace in the global context.

As part of the primary initiatives could highlight the global institutional conformation of the United Nations specialized agency for education Scientific and Cultural Organization (UNESCO) created at the end of the second world war, as a relevant assimilation and prevention, from the experiential scheme that left the previous interactions of misunderstanding. Emerging well, the promotion of new proposals or alternatives that would meet the differences or events that are eventually present between the nations that made up the overall framework. Thus exposing the strategies and general guidelines which in turn should have the possibility to permeate the bylaws and that made up the various societies, surrendering to the creation of a culture of peace promoter.

In its 28th General Conference, dated in the year 95, UNESCO. It proposes four aspects that would shape the so-called projects aimed at promoting peace from transdisciplinary understanding, which would be comprised of: Education for peace, human rights, democracy, international understanding and tolerance, human rights promotion and of democracy cultural pluralism and intercultural dialogue; prevention and peace building after disengagement.

Conceptions taken from previous resolutions in both assimilation and conceptual redefinition and clarifications statutes and function of the body acting as such, which since 1989 schematized as a definition of peace and respect for life as the most precious of humanity. Referring to the male and female principles of freedom, justice, equality and solidarity (UNESCO, 1989).

Provided so since its formation as an entity of reference in the promotion and fair driving timely action in both social development, for the premises that basic fundamentals unveiled its institutions, would settle in the understanding and recognition of the influence of information in the educational context as assimilation parameters assumed human activity, its attitudinal perspective and presence when self respect and tolerance are in understanding and respect for individual differences among peoples and nations. The powers that emerge from the appreciation in both distinctions, are assumed as fundamental characteristics typical of the species in the course of his historical participation in its various expressions. So that promote understanding and cooperation at the global level would be conforming actors positioned as the principal axes.

Also, the concept of no boundary in terms of promotion and expansion of conforming elements are reflected in the positions, which are based on the permanent educational perspective, as well as his stance of inclusivity and constant reaffirmation, as Mayor in (1996), noted as a critical social work, and distant from the whole structure rigid and inflexible, to the various societies that constitute the global stage, in addition to its ongoing educational design would be for everyone.

1.2 Understanding the concept of Peace.

Based on the concept of education as a process by which human beings are going understanding in communication with other humans (Lopez, 2006). The concept of peace education in addition to its broad heritage (Jares, 1992). This in turn has given his own assimilation pattern of the different historical contexts, socio-cultural, which although has been redesigned according to the specific circumstances of the adjacent epochs, its definition has been taken up in the search transformation of attitudes and actions to establish harmonious relationships based on respect and recognition of human rights, freedom and dignity of each person. Which in turn is intentional and creative consciousness, able to restructure responsibilities that promote human relationships.

In an understanding for peace, begins with being a fundamental aspect of human development and their relationships, as a promoter of affection, respect, and empathy. Based on the rediscovery of the existence of parallel realities, while social systems as a conforming entities in a search and creative proposals accurate and reflective of interaction. From a conceptualization of intentionality that permeates the acquisition and assimilation of harmonic coexistence with specific objectives processing and construction collective and individual awareness, aimed at achieving purposes such as: recognition, development, respect for the rights, freedom, and maintaining coexistence schemes. Purposes which in turn are reflected in previous universal human

rights declarations, stressing an special emphasis on education provision as a way to understand affordable, as seen explicitly stated in the article itself 26 of the universal declaration on human rights, whose guiding principles state:

That education shall be directed to the full development of the human personality and to the strengthening of respect for human rights and fundamental freedoms shall promote understanding, tolerance and friendship among all nations and all racial or religious groups, and shall further development of the activities of United Nations peacekeeping. (United Nations, 2010).

Everyone has the right to receive an education in peace and human rights, based on any educational system, which achieves help generate social processes based on trust, solidarity and mutual respect, facilitating peaceful solutions to various challenges that contribute alternately to rethink the human relations themselves.

This premise suggests peace education aimed at learning to live together and with others to develop an understanding of others and the perception of interdependence respecting the values of pluralism, mutual understanding and peace (Delors, 1996).

To achieve this platform requires the development of personal skills, the exercise of solidarization, empowerment, hope, autonomy, human love and freedom.

1.3 Significance of education for peace

This will understand the education for peace, as an educational process, ongoing and, according Jares (1992), is based on two concepts, one that would be the positive conception of peace, and other creative perspective of the challenges to be addressed; thus marking as guiding principles the following substrates:

Educating for peace would be a specific way values education. And this in itself carries implicitly the provision of securities, while its relevant coding. Understanding well that peace education presupposes adherence and value proposition to encourage this direction be and live peacefully, attending also the patterns whose statutes would be acting in different directions, which could be appraised from the perspective of creative resolution.

From and action would be the initial conception of the educational aspect of peace, citing attitudinal consistency that can present who participates in the formation and calls to the understanding of these aspects, its applicability and awareness of the general frameworks of peace. Such a comprehensive assimilation possible design would be supported by the active exemplification who would be a promoter.

In this sense, and just to be a concept of permanent application, schemes ordinary celebration and symbolic reference, would be a primal approach, but not a process of complementary, that is, that when posed the peace argument as an institutionalized precept, would be taking only a baseline scheme, which achieves the objectives draftsmen, would handle the shared participation of the participating teams, so that the Education for Peace would be understood as a continuous and permanent application.

Mainstreaming, as a dimension of peace education, we see from a proposal to integrate academic content in different social structures forming exercise their role in global collective understanding that training from the transdisciplinary perspective, the approach that takes in their educational proposals conceptualizations of peace as sensitizers participation bodies, would have greater possibility of extracurricular presence, as indicated Sacristan in (2001) refer to such content that should permeate all methodological and educational activity. Also Villarasa in (1990), warned that more than programs focused rather on the approach established guidelines from this approach could act peace, and from the various disciplines and at all levels and degrees.

As application contexts transdisciplinary understandings and their relationship to the context of global peace, would the reality in which we find ourselves and the distinct and diverse societies that exist on the planet, where the new proposals and underpin challenges to a comprehensive intervention and care, beyond dogmas or starring guidelines, which obstruct one timely and effective progress towards new and unprecedented situations.

Those who would agree with this understanding. Also allow greater insight into the realities manifest in the many existing fields, which in turn in the global from a transdisciplinary vision, the possibilities of action would show more prominence.

Conclusions

In this sense, the transformation object born into the exercise of introspection that is derived from a conscious conceptualization of peace, is aimed at creating an awareness of individual responsibility to the rest of the people who make the different contexts and for the individual, the reconfiguring attitudes, and reaffirm that are in keeping with the dignity proper to be, same that are geared to their independent development, full and grounded in their rights. In this way the peace education would not be exclusively focused on the transmission of knowledge, but in the full impact, which is reflected in the overall understanding multiple perspectives that make the individual, from their perspective of reality and the world surrounding and their own way of life perception and attitude.

In an internal transformation that extends beyond the individual aspect, reaching to the community, from a position of recognition and reconciliation, on an understanding of harmonious and peaceful coexistence, which permeates in its manifestation and life application schemes that build peace a cooperative manner, emotional and caring.

Also presented the approaches of understanding, that arise from the conception of the human being as a being able to modify and transform from their initial presence, his own self-concept, and outlook on life and reality, subsequently, achieving scope of transformation, so shared, besides being part of more complex clusters, and serve as an element of great potential, to encourage such changes, aimed at positive change, and from the very social structures that comprise the collective existence.

Arguments that the emblems outline and propose describing the main statements do this project, from conceptualization to transdisciplinary decoding are achieved, the statutes conforming to a development that has accompanied social participation processes in its different representations as well as multiple territories.

Appearing so that the development of this proposal raises the core axes of research that suggests the joint participation of many academic disciplines. Taking as a first stage involving the university context, from which findings allow us put forward the results oriented to the transdisciplinary integration as strong and coherent argument capable of giving and propose schemes and peaceful interaction in different global contexts structured, in and from peace.

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Perception of service quality: student oriented model

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Abstract

The goal of knowledge society is to meet the requirements of global learning needs. The passing from élite to mass education call for innovative solutions and consequently provides educational opportunities to diverse spectrum of students. Higher education institutions have to develop strategic preferences to ensure that the service meets students' needs and expectations. Education institutions should deliver knowledge in a way that enhance teaching and help students to develop to their full potential. In today's competitive environment the service quality is becoming increasingly important. While examining education service quality, many researchers focus on students' experiences, their perceptions of quality and satisfaction.

The aim of the paper is to examine different aspects of quality service impacting students' satisfaction. The results of the empirical analysis indicate that there is a positive correlation between pedagogical approach and technical support on students' satisfaction. The findings provide insights into students' preferences that are closely related to their perceptions of different dimensions of quality which can serve as framework for action plans for quality improvement.

Keywords: higher education; service quality; students' satisfaction.

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1. INTRODUCTION

In contemporary competitive environment, educational service quality is considered to be an important factor to attract and retain students. Students seek quality of teaching during their academic development process helping them to gain the full potential to successfully compete in the labour market. Students' satisfaction can be enhanced by high quality performance. Therefore education institutions have become student focused where students' perception of quality influence students' satisfaction and loyalty (Helgesen & Nettet, 2007; Angel, Heffernana, 2008). The literature on service quality in general treats students as active participants of the service delivery therefore perceived quality of the service depends on the extent to which expectations are met (Angel Heffernana, 2008). In this context, students have to perform their participatory role effectively, so desired result can be attained (Telford & Masson, 2005).

The aim of this paper is to examine the perceptions of undergraduate students with regard to the pedagogical and administrative perceived service quality that have the impact on students' satisfaction. The current study focuses on students' perception of quality while measuring quality perception of students of vocational college in Slovenia. The paper consists of introductory part followed by the chapter that deals with the service quality measurement scales within educational context. The core part presents empirical findings. The paper ends with concluding thoughts and proposition for future research agenda.

2. Perceived service quality

Customers' value is something that is perceived by customers and the value that is commonly accepted characteristic. Perceived value is customers' consideration of the utility of a product based on perceptions of what is received for the money paid (Zeithmal, 1988) as well as perceived preference for product attributes and performance in achieving the customer's goals (Woodruff, 1997). Providing superior service quality is considered to be very important strategic direction through which sustainable competitive advantage can be attained. Similarly, since educational service quality scales originate from marketing scales, service quality is the fundamental aspect of educational excellence.

2.1. Educational service quality

The students' perceived value is estimated by focusing on student's learning and education experience and students being co-creators of value. There is a need to focus on student learning which is viewed as "the heart of quality" (Law, 2010). The professors' performance in the class is the most important indicator in the students' development therefore is a significant feature of enhancing students' satisfaction.

Students absorb information differently and learn better when they absorb information in a way that suits their personal learning preferences. Students can be classified according to their particular preferences that define how they perceive and process information (Villaverde, Godoy and Amandi, 2006). The way a learner assimilates information depends on which side of her/his brain predominates (Jacobson, 2001) as it is presented in the table below.

According to experiential learning theory the best learning results can be attained by establishment of different teaching styles that correspond to different students personal learning preferences. Students absorb information differently and learn better when they absorb information in a way that suits their personal preferences (Penger, Tekavčič, Dimovski, 2008). Learning techniques should meet students' needs regarding course design, teaching methods and didactical approach (Rovai and Barnum, 2003; Liao and Wang, 2008).

Table 1. Differences between the two brain functions

Left mode	Right mode
Verbal (using words to describe, define)	Nonverbal (awareness of things, but minimal connection with words)
Rational (concluding based on facts and reason)	Non-rational (not requiring a basis of reasons or facts, willingness to suspend judgement)
Analytic (comprehending step-by-step and part-by-part)	Synthetic (putting things together forming the whole)
Logical (conclusions based on logic)	Intuitive (making leaps of insight, based on incomplete patterns, feelings)
Abstract (taking out a small bit of information and using it to represent the whole)	Analogical (understanding metaphoric relationships and seeing similarities between things)
Temporal (keeping track of time)	Non-temporal (without sense of time)
Linear (thinking in terms of linked ideas, one following another and often leading to a convergent conclusion)	Holistic (seeing whole things all at once and often leading to divergent conclusion).
Symbolic (using symbols to stand for something)	Concrete (relating to things as they are at the present moment).
Digital (using numbers)	Spatial (seeing where things are in relation to other things and how parts go together)

Source: Jacobson, 2001

A holistic theory that identifies learning style differences and experiential learning as a process of constructing knowledge and creating tension among experiencing, reflecting, thinking and acting has been developed (Kolb and Kolb, 2005). By considering the elements of experiential learning theory and the concept of change in learning processes, professors can guide students to improve learning through student centred model of teaching that focuses on supporting students to attain deeper understanding (Butler and Reddy, 2010). To match students' learning style preferences there is a need of a variety of teaching methods and learning strategies and in this way the attention, motivation and confidence in learning can be aroused and consequently students' satisfaction is gained (Liao and Wang, 2008). By knowing and implying diverse learning styles professors can help students retain information, increase self awareness, achieve higher level of thinking, higher level of understanding, and critical thinking, moving beyond memorizing to more meaningful learning, synthesising, analysing, applying knowledge and consequently contributing to their success (Jacobson, 2001).

3. Conceptual model of students' satisfaction

In the literature, a particular approach that is prominent is referred to as a stakeholder approach where various stakeholders' perception of quality is being assessed (Watty, 2005). Most commonly researchers focus is on students that value relative advantage gained while studying (Lagrosen, Sayed-Hashemi & Leitner, 2004). It is asserted that among different stakeholders students' perception of quality is the most relevant (McCuddy, Pirnar & Gingerich, 2008; Yeo, 2008, Gallifa & Batallé, 2010; Reid, 2010, Tsinidou, Georgiannis, Fitsilis, 2010). It is important to develop deeper relationship with the students and gain their feedback (Reid, 2010). Most of the studies while researching education service quality examined students' experiences and their perceptions of quality and satisfaction (Standifird, Pons & Moshavi, 2008; Arambewela & Hall, 2009; Oijako et al, 2011; Teo & Soutar, 2012).

The most frequently used scale for measuring service quality is SERVQUAL. It was developed by Parasuraman in 1988 and was initially used to measure customer perception of service quality in retail and service sector. Definitions of quality measurement were further discussed by Teo and Soutar (2012) and they

developed alternative model to SERVQUAL that is based on Grönroos two-dimensional model measuring service quality proposing technical and functional service quality aspects. Current study is build upon their two-dimensional approach while examining mediated effect of both constructs (“pedagogical aspects” and “technical support”) on “students’ satisfaction” through “word of mouth” as presented in Figure 1.

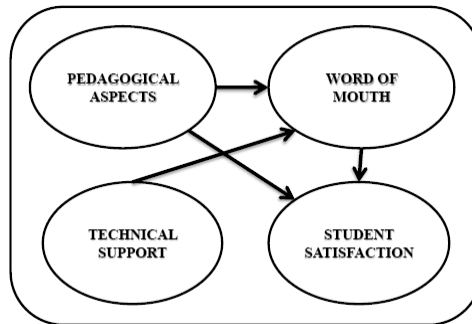


Fig. 1. Student oriented model

»Pedagogical aspects« is a latent variable that expresses the academic staff pedagogical approach that significantly impacts students’ quality perception. Many researchers confirmed “pedagogical aspects” to have the strongest impact on students’ perceptions of quality (Rojas-Méndez et al, 2009).

Also »technical support« is being conceptualized as a latent variable that pertain administrative staff supporting students solving their problems and fulfilling their requirements. While examining service quality regarding technical support we focused on administrative staff being always respectful, delivering prompt service to students, always responding to students’ requests and helping students to solve their problems.

Service quality is generally accepted as the driver of satisfaction and the ultimate outcome is the word of mouth (Petterson & Spreng, 1997; Cronin, Brady & Hult, 2000; Lam et al, 2004). Word of mouth is person to person communication about product, organization or service that occurs between a sender and a receiver having great influence on customer’s choice (Teo & Soutar, 2012). The quality of service becomes an important factor influencing students’ decision regarding the institution they wish to study at (Bayraktaroglu & Atrek, 2010) therefore students’ satisfaction assessment has become central when setting strategic goals. Students who perceive education quality as very high are more likely to demonstrate more favourable behavioural intentions (Sheu, 2010). Similarly, Arambewela and Hall (2009) emphasise the importance for attaining students’ satisfaction and consequently desired outcome such as “word of mouth”, retention and loyalty. »Word of mouth« is a latent variable that, placed within the student oriented model, indicates students speaking in favour to the education institution.

Students are the most important stakeholders and the goal is to achieve their satisfaction (Wang, 2003). Some researchers argue that students’ satisfaction is an antecedent of service quality (Parasuraman, Berry & Zeithaml, 1988) while others believe that it is service quality that leads to students’ satisfaction (Helgesen & Nettet, 2007; Rojas-Méndez et al, 2009; Sheu, 2010). The current research takes the latter view, that service quality is a precursor of satisfaction, which was confirmed by several authors (Cronin, Brady & Hult, 2000).

4. Research method

In this study qualitative research method was used to test the proposed research model. A survey instrument was prepared to collect the data from students about their perception of service quality. Before the main survey

was performed, a pilot study was applied on students enrolled in vocational college and measured the construct validity of the proposed research model.

The survey comprised of two parts. Firstly, there are demographic questions and the second part consists of 16 five-point Likert-type scale questions aiming to assess four constructs of the proposed research model. A sample consists of 43 males and 65 females. The mean age of the respondents is 24.5 years. These questions are anchored from 1 to 5 where 1 indicates strong disagreement and five indicates strong agreement. The data was gathered by deliverance of questionnaires to 108 students of tertiary vocational school in Slovenia. The questionnaire was delivered personally to avoid non-responses. The respondents were guaranteed confidentiality.

The study aimed to propose an adoption model from students' perception of service quality and the scale to examine the relations among their variables according to corresponding hypothesized impacts. The model comprised four dimensions, namely "pedagogical aspects", "technical support", "students' satisfaction" and "word of mouth". As developed by previous researchers, the first path depicts the impact of "pedagogical aspects" on the "students' satisfaction". The second path is directed from "pedagogical aspects" towards »word of mouth«. The third path indicates the impact of "technical support" on "students' satisfaction" and the last path is directed from "student satisfaction" to »word of mouth".

The variables under examination, namely »pedagogical aspects«, »technical support«, »students' satisfaction« and »word of mouth« are hypothetical constructs, or latent variables, rather than directly measured variables. Therefore, the model was proposed, which consists of a measurement model that takes measurement error into account and a structural equation model which allows estimation of causal relationships among the latent variables involved (Jöreskog and Sörbom, 2001). Software package LISREL 8.8 student version was used to compute the estimation and measure the model fit. In order to compute estimates for factor loadings the variance of each factor on indicator was fixed at 1.0. All relationships were positive. The reliability of the measurement model is critical issue for the application of structural equation modelling. Attention is focused on absolute fit indexes such as standardized root mean square residual (SRMR) and goodness-of-fit index (GFI), relative fit indexes such as comparative-fit index (CFI), normed fit index (NFI), and parsimonious fit indexes such as parsimony normed fit index (PNFI), and parsimony goodness-of-fit index (PGFI). Fit is good since RMSEA is 0,043 (<0,05), SRMR is 0,04 (<0,09), GFI is 0,94 (>0,09), AGFI is 0,88 (>0,09), NNFI is 0,99 (>0,09), NFI is 0,97 (>0,09), CFI is 0,99 (>0,09). The fit indicators report separately for the structural equation model and the measurement model suggesting that the model fits the data well.

5. Conclusion

In the highly competitive education market, it is essential to carefully develop strategic preferences in a way to ensure that the service meets students' needs and expectations. Students' satisfaction is a source of competitive advantage with outcomes such as positive word of mouth communication, student retention and loyalty. The study confirmed the "pedagogical aspects" to be the most important factor in achieving service quality with the role of the teaching staff attaining students' satisfaction along with the considerable importance of "technical support". There is a need to find creative and innovative solutions and provide educational opportunities to diverse population of students. The final goal of higher education institution is to provide meta-cognitive support to students. Knowing about learning styles, professors can improve teaching process and enable students' to perform better and more easily master the learning tasks. The goal of higher education institution in knowledge society is to meet the requirement of global learning needs and enable individuals to develop to their full potential and thereof achieve students' satisfaction. Both aspects, the academic and administrative efficiency of the institution are extremely important. Higher education institutions have to open up and view the student as a whole person and meet students' expectations. However, students' achievements are significantly predisposed by educational activities and teaching approach.

The proposed model shows the possible solutions to continuous development. Further research may consider even wider dimensions for various educational level contexts. It might focus on examination of students' perception of quality within different study fields to gain deeper understanding of quality dimension. Examining service quality perception of other stakeholder groups like employers, government and general public would contribute to broadening the way of quality enhancement.

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Perfection at the University, in the Opinion of Students

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Abstract

The article shows what is perfection, especially at the university, in the opinion of students of the Catholic University of Lublin in Poland. The students pointed to several aspects of perfection - ontological, moral and aesthetic. Excellence at the university was described by four basic categories: fulfillment of obligations (both by students and teachers), the good atmosphere (of whole academic community), adequate conditions (material, organizational and didactic), as well as the reputation of the university and the achievement of its mission. Item is part of studies on education in higher school, carried out by the authors since 2008.

Keywords: education; university; students; perfection

1. Introduction

This article aims to answer the question what is perfection at the university, in the opinion of students of the John Paul II Catholic University of Lublin. First we answer the question what is perfection. The term is most often explained in philosophy and pedagogy – in this context, we define it in this article. We rely on classical concept of perfection, according to Zofia Zdybicka and Karol Wojtyła, as well as on the pedagogical approach taken by Janusz Tarnowski. The main part of the paper is to present a written students' works about the excellence, especially in the context of higher education and their interpretation in the light of the presented concept of perfection. The research material was obtained in 2012, from two groups of students of pedagogy at the Catholic University of Lublin (a total of fifty-one people). The article also refers to research on the culture of higher school and university education, which were conducted by the authors of this article in 2008 and 2010, among the students and teachers of three higher schools.

2. Understanding of excellence in classical philosophy and pedagogy – the selected approaches

Zofia Zdybicka, a known Polish philosopher, dealing with metaphysics, ethics, and philosophy of God and religion, creating on the basis of classical Thomistic philosophy, describes excellence in three areas: ontic, moral, and aesthetic. So it is a recognition of excellence as a being, an act or a values. Excellence of being (ontic) can take two forms: hierarchically higher being (relative to lower being) and the actualisation of ontic potentiality (the act). The highest perfection is the highest being – the absolute – in the ontic aspect – it is "pure act, act of existence, the existence itself" (Zdybicka, 1985: 146). Perfection is a feature of absolut what inheres in it in full

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swing, but it inheres in the other beings only in an analogous manner. Perfection of being is revealed in the act or action directed at goal - the value of good.

Therefore, the ontic aspect of perfection is closely connected with the moral aspect. Moral perfection is the realization of value – in Aristotle, excellence is the realization of potentiality of being consistent with the nature of being (*optimum potentiae*). According to Immanuel Kant perfection is the realization of moral obligation, in accordance with the principle "proceed so that your actions could be a model for others" (Zdybicka, 1985: 147). The Christian perfection is imitation of God, thanks to love for Him and by His grace (Woroniecki, 1984).

By Zdybicka (1985: 147) perfection can also be aesthetic value "one of the three objective factors of beauty (*integritas*) as a feature of a finished, coherent whole."

Karol Wojtyła discusses in detail the concepts of excellence on ancient philosophy (Plato, Aristotle), medieval philosophy (St. Augustine, St. Thomas) and contemporary philosophy (Immanuel Kant and Max Scheler) in work "Wykłady Lubelskie" (Wojtyła, 1986: 99, 104-5, 107, 122-3, 198-9).

Janusz Tarnowski describes perfection from the perspective of personalistic and existential pedagogy (Sliwerski, 2010: 69). His point of view is very close to Wojtyła's approach. Tarnowski believes that perfection, and properly striving for it, is necessary in education, and it relates primarily to educators and teachers. The man - both teacher and pupil - should exceed himself in every moment of his life and "the measure of his development is infinity" (Tarnowski, 1992: 143). A teacher, that starts upbringing from himself, can become an authority and a role model for pupils. The children start to imitate the teacher and they are inspired by personal dialogue with him or her. These pupils try to be more perfect and take responsibility for themselves and their development, but it is a gradual and lengthy process. Even though the education is based on the authority of the teacher, it can not be based on the authoritarian relationship. This understanding of excellence in upbringing is particularly important at the university, where we are dealing with young people who want to have personal role models, but they are also able to think critically about their university and their teachers.

3. Methodology of the research

The present study is a continuation of the research conducted by the authors in 2008 and 2010 among students and teachers of university and higher schools. Studies in 2008 and 2010 were related to the culture of the university and to education at the university and at the higher school. The aim of the present study was to answer the question: what is perfection, especially at the university, in the opinion of students of the Catholic University of Lublin. Statements of 51 students of pedagogy (II and IV year full-time) were collected to answer the research question. The statements were written completely arbitrary and had two parts. They provided the answer to the question, "What is your opinion on perfection, and especially what is perfection at the university?" The statements were collected in November 2012. The collected comments were categorized. Then the categories were grouped into four types: "honest fulfilling the obligations", "atmosphere at the university and meeting the needs", "material, organizational and didactical conditions" and "mission and reputation of the university." Subsequently the responses were counted. The result of calculations and conclusions arising from them are presented in next section.

4. Results of the research

Before we get to discuss in detail the results of research on students' opinions about the perfection at the university, we will answer the initial, basic question – how do students specify the concept of perfection. This was the first part of their expressions. The students often stated that perfection is: "an ideal pattern", "something

above the norm", "ideality", "being perfect", "being the best", "excellence", "precision in execution", "aiming for the objective", "the realization of a value". At the same time, many respondents marked that nothing was perfect, and a perfect man did not exist, but almost all people strived for perfection. Although perfection could be understood variously by different people. Interviewees repeatedly emphasized that there were different sides of perfection such as: the perfection of behavior, professional excellence (professionalism), aesthetic perfection (excellent work of art, the perfection of appearance – beauty, fashion clothes).

Voices about the negative side of perfection also appeared in several pronouncements. The young people said that a "excellent" person could be cocky and could treat patronizing the others. Students emphasized that the pursuit of excellence can be done at the expense of other people, and even at the expense of your own health. Thus, the students probably wanted to draw attention to the negative (social and health) consequences of perfectionism. The abovementioned statements testify to the fact that the respondents perceive the category of excellence: 1. in ontological sens, as a being ("model", "ideal") or as an act ("realisation of himself", "aim to something", "achievement of an aim"), 2. in ethical sens ("good behaviour", "be a better man"), as well as 3. in aesthetic aspect (realization the value of beauty).

Perfection at the university was understood differently by respondents, but we can clearly identify certain categories of expression – at the same time – the categories of understanding. The first one, called conventionally "good fulfilling the duties", is presented in Table 1.

Table 1. Perfection at the university as good fulfilling the duties

Symbol	Description	Number of choices
1.	Good fulfilling the duties	in total: 91
1.1.	by lecturers - skillful transfer of knowledge, a high level of education, improving teaching methods	18
1.2.	by students – conscientious fulfillment of obligations, such as preparation for classes and exams	21
1.3.	motivating to work, developing the students' interests, putting the requirements	15
1.4.	individual attention of lecturer to students	1
1.5.	execution of work in accordance with his or her conscience	5
1.6.	gaining knowledge necessary for living and working	10
1.7.	good, planned teaching and learning	7
1.8.	improvement and self-realization	14

Table 1. collects students' statements directly related to the first category: "good fulfilling the duties". The respondents understand it in particular as: good performing the duties by students (21 responses), as well as by lecturers (18 responses), which includes, among others: skillful transfer of knowledge, a high level of teaching, improving of teaching methods, professionalism and individual treatment of students. Developing students' interest, motivating to work, putting high demands are farther elements of perfection at the university (in the aspects of performance of duties) – according to the respondents (15 responses). Both sides of the educational process (lecturers and students) should still improve the work at the university (14 responses), they should all the time acquire the knowledge necessary for living and working (10 indications, primarily relating to youth),

properly plan the teaching and learning (7 indications) and conscientiously perform their duties (5 voices). This attitude of students and teachers is – in the opinion of the respondents – the same as the striving for perfection. However, they also pointed to another important element in improving the university, which is the right atmosphere. It is shown in Table 2.

Table 2. Perfection at the university, as an appropriate atmosphere and meeting needs

Symbol	Description	Number of choices
2.	Atmosphere and meeting needs	in total: 79
2.1.	good atmosphere - good interpersonal relationships	17
2.2.	respect for others, honesty	8
2.3.	caring for the welfare of students and staff	10
2.4.	justice, fairness	2
2.5.	openness	6
2.6.	understanding the needs and difficult situations	10
2.7.	helping people from outside the university e.g. as volunteer	6
2.8.	support for students	8
2.9.	organizing free time in collaboration with the local community	1
2.10.	students' help for the university e.g. the organization of conferences	4
2.11.	good communication between staff and students	7

Table 2. shows the components of the right atmosphere at the university, which is an essential component of university perfection. The proper atmosphere – by students – includes: good interpersonal relationships (17 responses), caring for the welfare of staff and students (10 responses), understanding the difficult situations of students, such as the need of paid work and the need of raising children (10 responses). Respondents also pointed out the need for mutual respect and integrity in the academic community (8 responses) appropriate assistance to students (8 answers), especially those in difficult situations. However, tested youth also saw need of helping people by students (a total of 10 responses), both within the university (e.g. by organization conferences, in scientific circles) and outside the university (e.g. within volunteering). The respondents note that efficient communication (7 responses), openness of university (6 responses) and justice (2 answers) were also the elements of perfection at the university. Only one person pointed out the importance of organizing leisure activities e.g. by students together with local authorities.

The next category of students' statements which has been singled out by the authors, is "material, organizational and personnel conditions." Table 3. presents a number of choices particular components of this category.

Table 3. Perfection at the university as material, organizational and personnel conditions

Symbol	Description	Number of choices
3.	Material, organizational and personnel conditions	in total: 42
3.1.	the material conditions - dormitory, classrooms	14
3.2.	early information about changes	3
3.3.	efficient handling matters - good organization	4
3.4.	clearly defined rules of study and exams	3
3.5.	good library	1
3.6.	providing qualified staff	13
3.7.	good organization of classes	4

As can be seen above (Table 3.), the students attach the greatest importance to ensuring good material conditions (14 responses), including: neat dormitories, nice classrooms and modern, properly equipped buildings. However, the qualified staff is in second place (13 responses). Less people found that the effective handling matters (4 answers) and the good organization of the course (4 answers) are important. Only three people recognize that the part of perfect functioning of the university were also clearly defined rules of study (including passing exams), and timely information about changes (e.g. in the class schedule). Only one person draws attention to the fact that students should have access to a good library.

The respondents found that reputation of the university and fulfilling its mission is the last component of university perfection (Table 4.).

Table 4. Perfection at the university as realization of its mission and as taking care about the reputation of the university

Symbol	Description	Number of choices
4.	Mission and reputation of the university	in total: 8
4.1.	realization of university mission	1
4.2.	taking care about university reputation	4
4.3.	patriotism	1
4.4.	high place in the ranking	2

Table 4. indicates that only eight people pay attention in their statements on the need of taking care about reputation of the university (4 subjects), obtaining high place in rankings (2 subjects), accomplishment of university mission (one person), and patriotism as the value of academic community (one person).

The last, summary table shows how many choices were given to each of four categories described above.

Table 5. Categories which are synonymous with perfection at the university - in the opinion of students – summary

No.	Description	Number of choices	
		N	%
1.	Good fulfilling the duties	91	41
2.	Atmosphere and meeting needs	79	36
3.	Material, organizational and personnel conditions	42	19
4.	Mission and reputation of the university	8	4

The most important to achieve perfection at the university seems to be honest (consistent with a conscience) performing the duties – students describe it in different places as much as 91 times (41% of responses). Students describe the atmosphere at the university and meeting the needs of members of the community as the second major category – they indicate it 79 times (36% of responses). Less important in the development of university perfection seem to be material and organizational conditions – together with personnel conditions – they received 42 indications (19%). The latter can be also attributed to the first category – proper performance of duties, because the good staff is the honestly working staff. In this situation, the first category got even more number of choices. And – as we can see above – shaping the reputation of the university and fulfilling its mission were mentioned only 8 times (4% of responses), they seem to be the least important to students.

5. Comparative analysis of the research results on culture and education in higher school (2008-2010) and the research results on perfection at the university (2012)

In 2008 and 2010 the authors of this article conducted surveys on culture and education in higher school in three Polish higher schools (Łuka, Truskolaska, 2009; Łuka, Truskolaska, 2011). The first part of the study (2008) refers to the opinion of students (208 respondents), while the statements of lecturers (71 respondents) were analyzed in the second part of the study (2010). The results from both parts of the study clearly show teachers as a very important group shaping the culture of higher education, in the opinion of students and lecturers. The majority opinion points to the fact that the important role of the academic teacher is not only 'practicing' science at a high level, but also: setting a good example for students, carrying out good teaching, implementation of educational mission of the university. The research described in this article, and carried out in 2012, supports this view, pointing to the need of good fulfilling duties by the academic staff (see Table 1.).

Those who shape the culture of the university – according to the opinions from 2008 and 2010 – are all staff and students. The current research on perfection at the university, also emphasizes the important role of good performance of their duties by the students. They understand it as: solid preparation for classes and examinations, acquiring the knowledge necessary for life and work, as well as the assistance provided by students at the university and help people outside the university.

The subjects in 2008 and 2010 indicate that one of the most important elements of a culture of the school is implementation of the value in everyday life through behavior in relation to other members of the academic community. Similarly, students by formulating their opinions on the excellence at the university in 2012, emphasize the need of a positive attitude of students to teachers and vice versa, as well as the need to meet their needs and helping each other.

The students in the study in 2008 indicate that teachers contributed to the deepening of knowledge, but subjects also underline lecturers' contribution to shaping friendly atmosphere on campus through e.g. fairness, openness, and good communication. The research conducted in 2012 also shows the important role of building a positive climate and the proper interpersonal relations in creating perfection at the university. Students emphasized – like their colleagues four years earlier – that a good atmosphere, proper communication and perception of the individual needs of students is important in shaping perfection at the university. It seems that the statements of students from 2008 and 2012 and the statements of lecturers from 2010 confirm each other - the interviewed show similar aspects of culture of higher education, and the striving for perfection at the university.

6. Conclusions

It was found, in the second section of this article, that perfection in philosophy is often understood as a goal-oriented action, and the good is the goal of the action. Our research shows that the students similarly understand the term of perfection. At the same time, the subjects – who contribute to create academic community – point to the need to strive for excellence at the university. They point to four key elements that allow for development of perfection: the conscientious fulfillment of obligations, appropriate atmosphere, suitable conditions for studying (material, organizational and personnel) and taking care about reputation of the university. The students emphasize necessity of engaging both students and lecturers in good job at the university. The opinions expressed in the study are congruent with the approach of Father Janusz Tarnowski – described in the first part of the article. Tarnowski emphasizes the need of continuous improvement of educators and teachers. Their examples attract youth, they become personal model for young people, who also want to be better and better.

These results are consistent with the research results from 2008 and 2010, carried out by the authors. They indicate what areas are most important in shaping the culture of higher education and striving for excellence at the university – in the opinion of our students and lecturers. Thus, it seems that the results of our study have not only theoretical, but also practical connotation.

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Physical and mental training: jet lag and fast cognitive-emotional recovery

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Abstract

Several studies have underlined that the rapid long-haul transmeridian flights cause a circadian dyschronism, entailing physical upsets and psychological consequences (Winget et al. 1984). This research was aimed to evaluate the impact of time zone transitions on self-perception of mood, concentration, and time reactions, in a sample of 21 fencers, participating in the 2011 World Fencing Championships. Two self-report instruments were administered: the Profile of Mood States and a questionnaire assessing travel, sleep habits, and sleep-wake cycle in the first week after the arrival. Results of the mixed-method analysis and possible educational intervention on athletes' psychophysical recovery were discussed.

Keywords: Jet-lag; circadian dyschronism; mood alteration; cognitive-emotional recovery; physical and mental training.

1. INTRODUCTION

Since the diffusion of the modern sports, the number of élite athletes, with their staff, undertaking long-distance flights has continued to increase. For many athletes, this leads to a condition defined jet-lag.

The Jet lag Syndrome is a circadian rhythm disorder caused by a displacement between internal and external clock. It is the result of a temporary desynchronization of circadian rhythms by psychophysiological functions (such as attention, memory, and concentration) and performance abilities. Jet lag is characterized by a general psychological and physical discomfort associated with a typical fatigue accompanying long trips (Waterhouse, Reilly, Atkinson, & Edward, 2007).

The disorder is transient and disappear after a few days, with the realignment of the rhythms. The jet-lag produces a number of undesirable effects including disturbed sleep, loss of concentration, decreased efficiency, and depressed mood. These effects result from an individual's inability to adjust quickly the circadian clock to the requests of the new time zone. Generally, the duration and intensity of the jet lag symptoms is proportional to the number of time zones crossed, even if it depends on the traveler's characteristics (Winget, 1984).

Jet lag also depends on the direction of travel. Many studies (Comperatore, Lieberman, Kirby, Adams, and Crowley, 1996; Petrie, Conaglen, Thompson, and Chamberlain, 1989; Waterhouse, Reilly, Atkinson, 1997) showed that the eastward travel is often more difficult than westward travel, because the subject is forced to a

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shortened day and this made it harder to support the adaptation to the new time zone. However, Relly and Waterhouse (2005) showed that elite athletes were affected by jet lag, regardless of the direction of travel.

It also has often been assumed that jet-lag can affect the psycho-physical wellness of the athletes and can cause detrimental effects on their performance in training and competition. In their study, Relly et al. (2009) involved the British Olympic Team, after a flight from the United Kingdom to Florida. Athletes reported symptoms, such as a decreased strength in the legs and a slower reaction time, which lasted for five days after the travel. Pirritano, Cei, Lucidi, and Violani (1997) showed that about 80% of the Italian elite athletes involved in their study was affected by the jet lag in the days following the transoceanic flights. 65% believed that jet lag does not directly affect the performance in the competition, but 31% suspected that the performance could be negatively affected.

Studies on the relationship between jet-lag and athletic performance have focused on the physiological adaptation of the athletes. Only few studies have also investigated psychological variables and results are not definitive.

Bullock, Marti, Ross, Rosemond, and Marino (2007) analyzed the impact of the long-haul flights to the east (from Australia to Canada) on the diurnal variations in cortisol, the psychological sensations, and daily measurements of physical performance in a sample of skeleton athletes. Five elite Australian skeleton athletes undertook the flight compared with seven athletes who did not travel. In both groups were recorded the amount of cortisol after 60 and 120 minutes of waking, the psychological sensations were assessed with a questionnaire on the jet-lag, and maximal 30 m sprints were performed once a day between 09:30 and 11:00 h local time. A distinct phase change in salivary cortisol rhythmicity were registered and the athletes perceiving themselves as “jet lagged”, but minimal disturbances in their physical performance were seen in the group of elite skeleton athletes after long haul eastward travel.

Waterhouse et al. (2002) conducted a study with 39 British athletes traveling to Australia, in order to investigate the relationship between the jet lag symptoms and adjustment time to the new time zone.

Each athlete was asked to evaluate the jet-lag, five times a day (at 8:00, 12:00, 16:00, 20:00, and 24:00 h) and fill out a questionnaire on the Jet Lag. The results showed a relationship between jet-lag and both physical and psychological symptoms, such as the alteration of sleep, daytime fatigue and loss of concentration, but there was no correlations between jet lag and other physical consequences, such as loss of appetite and gastrointestinal problems.

Several meta-analytical studies have confirmed the impact of sleep deprivation on psychomotor performance (Reilly and Edwards, 2007). The effect on performance depends on the period without sleep and the decreases in speed were greater than decrements in accuracy (Koslowsky and Babkoff, 1992). Pilcher and Huffcutt (1996) analysed 143 study coefficients and suggested that mood is more affected by sleep deprivation than cognitive tasks, which were more sensitive than motor tasks. Reilly and Edwards (2007) noted that “sports skills frequently incorporate decision-making as well as physical components, errors in either of which are reflected in performance outcomes. Any deterioration in mood is also likely to affect performance where maximum effort and determination are required of the participant” (Reilly and Edwards, 2007, p.276).

2. Method

2.1. Purpose

The general purpose of this study was to evaluate the psychological recovery in a sample of near-élite fencers.

The initial hypothesis was to verify a direct correlation between crossed time zones and perception of mood, concentration, and time reactions.

We also analyzed the relationship between sleep-wake cycle changes and psychophysical problems reported by the athletes in the week after their arrival in Italy.

2.2. Participants

This study involved 21 male fencers, from 21 to 38 years old ($M = 25,80$; $sd. = 4,58$), from different countries, participating in the World Championships, held in Catania from the 8th to the 16th of October, 2011.

2.3. Instruments

Two self-report instruments were administered:

- the Profile of Mood States (POMS)
- a questionnaire assessing travel, sleep habits, and sleep-wake cycle in the first week after the arrival in Italy.

Subjects were asked to answer about demographic information, flight, and sleep habits; as far as the first week after the travel, they asked to indicate their total sleep time, night-time awakenings, day-time rests, bedtime and awakening time. Furthermore, a last section of the questionnaire contained items related to the jet-lag symptoms and other psychophysiological complaints (concentration and mood problems, gastrointestinal problems, fatigue, slow reflexes, physical weakness, insomnia, sleep disturbances) .

2.4. Procedures

All of the subjects were informed about the purposes and instruments of the study and then were asked to give an informed consent.

Participants were assessed over a 7-day period for 5-10 minutes each day.

On Day 1, participants were asked to complete the self-report questionnaires. Every morning, each athlete was asked to report information about the previous night's sleep (total sleep time, night awakenings, bedtime and awakening time). On Day 7, each athlete completed the last section of the questionnaire about the psychophysiological problems.

3. Results

The descriptive analysis highlighted that eastward travelling athletes slept fewer hours during the first two nights after the travel than usual. Within the group of westward travelling athletes, only two subjects had problems in sleep duration.

These frequencies also reflected in the descriptive analysis of nocturnal awakenings during the first week after the arrival in Italy.

As expected, the disturbances reported by the athletes include a general physical weakness and other physical problems. Compared to the Psycho-physical problems Checklist, westward travelling athletes reported more physical troubles than mood problems. Eastward travelling athletes reported both physical and psychological disorders.

3.1. Correlations

Pearson's correlations showed a positive significant correlation between the physical strength recovery time and number of physical bothers ($p < 0.05$), tiredness ($p < 0.05$), and also the subscales tension ($p < 0.01$), depression ($p < 0.01$), and hostility ($p < 0.01$) of the POMS .

Furthermore, there was a significant positive correlation between concentration problems perceived and recovery times of concentration and mood (Table 1). There was no significant correlation between the number of hours of the flight and the number of time zones crossed.

Table 1. Correlations between Flight (n. of hours), Time zones, Recovery time, Psycho-physical problems, and Profile of Mood State Questionnaire (POMS)

	N. of hours of the flight	N. of Time zones (a)	Recovery time of physical strength (b)	Recovery time of concentration (b)	Recovery time of mood (b)
<i>Psycho-physical problems Checklist:</i>					
Physical bothers	0,332	0,005	0,548*	0,469	0,374
Problems in Concentration	-0,095	-0,282	0,159	0,579*	0,684**
Problems in Mood	0,076	-0,216	0,236	0,406	0,639
Tiredness	0,332	0,005	0,528*	0,469	0,374
Reflex slowness	-0,176	0,053	0,053	0,290	0,204
Weakness, physical strength problems	0,049	-0,293	0,034	0,201	0,339
<i>POMS subscales:</i>					
Tension	0,234	-0,168	0,605**	0,438	0,389
Depression	0,209	0,136	0,579**	0,391	0,332
Anger	0,388	0,102	0,462**	0,300	0,303
Vigour	0,058	0,181	-0,230	-0,398	-0,401
Fatigue	0,121	-0,019	0,408	0,442	0,454
Confusion	0,255	-0,174	0,412	0,343	0,474

* $p < 0,05$; ** $p < 0,01$

(a) from the City of departure to Italy

(b) in days

3.2. Comparisons

Comparison between groups were made using the Student t test and one-way ANOVA.

Participants were divided according to the median of time zones crossed (until 4 time zones, more than 4 time zones). Then, comparisons between these groups showed only a significant difference in the Vigour subscale of the POMS ($p=0,03$). Athletes travelling more than four time zones have significantly higher average than athletes traveling four time zones or less (Table 2).

Comparison between groups were made using the Student t test and one-way ANOVA.

Participants were divided into two groups, according to the median of time zones crossed (until three time zones and more than three time zones). Then, comparisons between these groups showed only a significant difference in the Vigour subscale of the POMS ($p=0,03$). Athletes travelling more than three time zones have significantly higher average than athletes traveling three time zones or less (Table 2).

Table 2. Comparisons between athletes grouped according to the median of the time zones crossed

Profile of Mood State Questionnaire (POMS)	Until 3 time zones		More than 3 time zones		t	p
	(n=11)		(n=9)			
	Mean	SD	Mean	SD		
Tension	7,00	4,38	9,78	6,32	-1,159	ns
Depression	4,40	5,10	10,11	8,43	-1,808	ns
Anger	4,45	3,17	10,78	7,17	-2,455	0,03
Vigour	12,00	3,71	14,00	5,50	-,968	ns
Fatigue	6,64	6,53	8,33	5,96	-,601	ns
Confusion	5,20	3,39	7,89	2,76	-1,881	ns

Comparison between athletes, grouped according to travel direction (to the west, the east, and within the same time zone), showed that in the Vigour subscale of the POMS ($p = 0.03$), athletes traveling westward have significantly higher average than athletes traveling eastward, and than athletes remaining within the same time zone (Table 3).

Table 3. Comparisons between athletes, grouped according to travel direction

Profile of Mood State Questionnaire (POMS)	Eastward		Westward		Northward or Southward		F	p
	(n=11)		(n=5)		(n=4)			
	Mean	SD	Mean	SD	Mean	SD		
Tension	8,55	5,663	7,60	5,079	8,25	6,397	0,048	ns
Depression	6,70	8,731	9,20	5,541	5,50	6,191	0,293	ns
Anger	7,00	6,403	9,20	7,120	5,75	4,787	0,357	ns
Vigour	11,45	1,753	17,40	6,877	11,25	3,862	4,339	0,03
Fatigue	7,45	6,758	7,80	7,430	6,75	3,862	0,030	ns
Confusion	7,20	2,936	6,20	3,271	5,00	4,619	0,622	ns

Finally, comparisons between groups, divided according to the number of hours of flight, there were no statistically significant results in perceived mood states.

4. Discussion and conclusions

Past research on jet lag and athletic performance focused more on physiological variables than psychological dimensions. Findings of this study show that there are differences among athletes related to the number of time zones crossed and travel direction, concerning a subscale of the Profile of Mood State, the vigor. Perceived tension, hostility, and depression are significantly related to strength and physical fatigue recovery times, but there are no significant correlations among these variables and the number of hours of the flight and time zones crossed.

The self-perception of the mood could be caused by jet lag, as suggested by the psychological and physical disorders related. However, both the perception of mood and jet lag symptoms could be due to different causes, for example the perceived tension for the competition.

Nevertheless, the evidence suggests that a non-pharmacological intervention might be effective in managing the jet lag symptoms and perceived mood state.

From a research perspective, more research is needed in order to define a causal model with psychological variables related to performance in competition.

A limitation of this research concerns the assessment instruments. The different nationalities of athletes has limited the use of standardized psychometric tests, especially for the assessing of cognitive tasks. Further

research could assess the athletes in attentional, perceptual and mnestic tasks, comparing the results with their state of mood profile and response patterns in motor tests.

The tests should be administered in two stages, before and after the travel, in order to establish the baseline scores and check for the pre-post differences.

Finally, further investigation should consider the perceived precompetition anxiety, in order to analyze the relationship between this variable and perceived psychological and physical symptoms.

Previous research analysed the pharmacologic approaches and their effects on travellers, aircrew, and athletes (Relly, Waterhouse & Edwards, 2005). The pharmacologic treatments include the use of zolpidem and specific GABA agonists, antidepressants, and melatonin (Leger, Metlaine, Chudat, 2005). Other studies investigated the effects of the exposure to bright light in order to facilitate the resynchronization of the sleep-wake cycle (Czeisler, Richardson, Moore-Ede, and Wetzman, 1981; Manfredini, Manfredini, Fersini, and Conconi, 1998; Postolache and Dan Oren, 2005). Furthermore, athletes could benefit from nonpharmacologic techniques for promoting sleep onset. Several studies investigated these simple and self-administered techniques, including sleep hygiene, inverted posture, stimulus control, breathing techniques, motor and cognitive relaxation, and cognitive behavioral therapy (Hauri, 1982; Cole, 2005; Leger, Metlaine, Chudat, 2005; Reilly, Waterhouse, and Edwards, 2005).

From an applied perspective, it could be useful to combine a psychoeducational intervention with motor and cognitive relaxation techniques and mental training.

The intervention should begin in the flight preceding period to allow an optimal management of the athlete's psico-physical recovery.

Mental training should be provided in conjunction with the physical and technical training and it should include relaxation techniques as well as pre-competition mental preparation strategies.

Relaxation techniques, such as autogenic training (Schultz, 1932) or the progressive relaxation (Jacobson, 1938), could be used to encourage an awareness process of muscle tension during the rest periods and work sessions, managing the stressful situation.

Finally, the mental imagery, ideomotor training, and breathing relaxation techniques could facilitate a positive emotional and cognitive involvement of the athlete.

A psychoeducational intervention on the long-distance travel effects could help the athletes in managing the psychological consequences of the jet lag.

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4th International Conference on New Horizons in Education

Possible uses of newton's laws of motion in commodity price theory and the training of expert appraisers at universities

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Abstract

Newton's equations of motion are discussed with respect to their use in the theory of pricing commodities and for training expert appraisers at universities. Newton's equations of motion describing the movement of bodies at non-relativistic speed with constant mass over time are analyzed in three dimensional space. Also analyzed are motion equations describing the movement of bodies at non-relativistic speed with changing mass over time. The last part of the paper deals with equations of motion for describing the development of instantaneous relative depreciation and instantaneous relative commodity prices over time.

Keywords: Acceleration, jerk, law of inertia, law of force, law of interaction, momentum, market value, relative depreciation, relative price.

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2. Introduction

In 1687 Newton published his work “Philosophiae naturalis principia mathematica” where he introduced three principles or laws of motion:

1. Corpus omne perserverare in statu quo quiescendi vel movendi uniformiter in directum, nisi quatenus a viribus impressis cogitur statum illum mutare (Newton, 1687).
Motte’s translation into English: Law 1. Every body continues in its state of rest, or of uniform motion in a right line, unless it is compelled to change that state by forces impressed upon it (Newton, 1952, 1960).
2. Mutationem motus proportionalem esse vi motrici impressae et fieri secundum lineam rectam qua vis illa imprimitur (Newton, 1687).
Motte’s translation into English: Law 2. The change of motion is proportional to the motive force impressed; and is made in the direction of the right line in which that force is impressed (Newton, 1952, 1960).
3. Actioni contrariam semper et aequalem esse reactionem: sive corporum duorum actiones in se mutuo semper esse aequales et in partes contrarias dirigi (Newton, 1687).
Motte’s translation into English: Law 3. To every action there is always opposed an equal reaction: or, the mutual actions of two bodies upon each other are always equal, and directed to contrary parts (Newton, 1952, 1960).

Newton’s laws of motions are currently interpreted as follows (Yavorsky & Detlaf, 1972):

1. Newton’s first law of motion (the law of inertia) states: Every material point persists in the state of rest or uniform motion in a straight line until the actions of other bodies compel it to change that state.
This law is called the law of inertia, and the motion of a particle, free of external action, is called inertial motion.
2. Newton’s second law of motion (the law of force) may be stated as follows: The first time derivative of the momentum of a particle is equal to the force acting on it.

Thus

$$\frac{d\vec{p}}{dt} = \vec{F} \text{ or } \frac{d}{dt}(m\vec{v}) = \vec{F} \quad (1)$$

The vector $\vec{F} \cdot dt$ is called an impulse of force \vec{F} acting over time dt .

In Newton’s formulation, the 2nd law is also applicable to the mechanics of bodies having variable mass, thus in relativistic mechanics.

Newton’s second law of motion can also be stated in the form: an elementary change in the momentum of a particle is equal to the elementary impulse of the force acting on it, i.e.

$$d(m\vec{v}) = \vec{F}dt. \quad (2)$$

However, since $m = \text{const}$, the acceleration vector \vec{a} is determined by the equation

$$\vec{a} = \frac{d\vec{v}}{dt} = \frac{\vec{F}}{m}. \quad (3)$$

3. Newton’s third law of motion (law of interaction): The action of two particles on each other are equal in magnitude and opposite in sense.

Thus

$$\vec{F}_{12} = -\vec{F}_{21}, \quad (4)$$

where \vec{F}_{12} is the force acting on the first particle exerted by the second particle, and \vec{F}_{21} is the force acting on the second particle exerted by the first particle.

According to (3) force \vec{F} is directly proportional to the product of the mass m and acceleration \vec{a}

$$\vec{F} = \text{const} \cdot m\vec{a}. \quad (5)$$

By selecting suitable units, it is possible to make the constant of proportionality, *const.*, equal to one.

The relationship which describes possible movement of a body in space is called an equation of motion. We understand a body to be a body or particle or possibly a set of particles. Space is understood to be the forces and fields of force acting upon the body and the mechanical relationships which limit its motion. By solving the equation of motion we obtain the position of the body at any given moment. In classical mechanics the solution describes the trajectory of the body. In quantum mechanics it is the result of a time-varying wave function (Karjakin, Bystrov & Kirejev, 1972).

In their most general form, equations of motion are typically differential equations of the second order, where we take the derivation of time. The solution is a vector function describing the position of the body in relation to time $\vec{r} = \vec{r}(t)$, which is an expression of the trajectory of the end point of the vector radius (Kohlmann, 1960). If $m = \text{const}$, the basic dynamics equation takes the form

$$\vec{F} = m\vec{a} = m \frac{d\vec{v}}{dt} = m \frac{d^2\vec{r}}{dt^2}, \quad (6)$$

resultant force \vec{F} and acceleration \vec{a} of the rigid body are vectors in the same direction. We call this a motion equation. For force we substitute the functions of time, position or velocity, i.e. in general $\vec{F} = \vec{F}(\vec{r}, \vec{v}, t)$.

3. Equations of motion at constant mass

3.1. Equations of motion at zero force

If $\vec{F} = \vec{0}$, then we can express the equation of motion using the first law of motion, for $\vec{F} = \vec{0}$ then $\vec{a} = \vec{0}$ and the equation of motion has the form

$$\vec{a} = \frac{d^2\vec{r}}{dt^2} = \vec{0}. \quad (7)$$

Since acceleration is zero, the velocity must be constant, thus $\vec{v} = \vec{v}_0$, which satisfies the first law of motion.

The initial velocity \vec{v}_0 does not change without the action of force during motion.

3.2. Equations of motion at constant force

If $\vec{F} = \text{const}$ and is in the same direction as the motion, i.e. $\vec{F} \uparrow \uparrow \vec{v}$ and thus $\vec{a} \uparrow \uparrow \vec{v}$, all vectors are parallel and we need not consider the vector character of quantities. We may then write

$$F = \frac{d^2s}{dt^2}, \quad (8)$$

where $s = s(t)$ is the path at time t . The solution of differential equation (8) is

$$s = s_0 + v_0 t + \frac{1}{2} \frac{F}{m} t^2, \quad (9)$$

where $\frac{F}{m} = a$ and is independent of time, thus the body must continually accelerate, s_0 is the initial position and v_0 is the initial velocity.

If $\vec{F} = \text{const}$ is not in the direction of motion, the motion equation can be expressed in the form

$$\frac{d^2 \vec{r}}{dt^2} = \frac{\vec{F}}{m}, \quad (10)$$

and the acceleration vector \vec{a} has a different direction than the velocity vector \vec{v} . The body will move in a general curvilinear motion.

3.3. Equation of motion for harmonic oscillation

Let the force acting on the body be directly proportional to the distance (deviation) from the equilibrium position and moving to this position (harmonic oscillator). The equation of motion then has the form

$$-ky = m \frac{d^2 \bar{y}}{dt^2}, \quad (11)$$

where $y = y(t)$ is the deviation from the equilibrium position and m is the mass of the body. Solving equation (11) yields the function

$$y = y_{\max} \sin(\omega t + \phi_0), \quad (12)$$

where $\omega = \sqrt{k/m}$ is the angular velocity. The body must move in a harmonic (sinusoidal) motion. y_{\max} is the maximum deviation and ϕ_0 the initial phase of the motion.

3.4. Equations of motion for curvilinear motion

For curvilinear motion, the acceleration vector \vec{a} is never in the same direction as the tangent of the trajectory, but it can be broken down into two mutually perpendicular components \vec{a}_n and \vec{a}_τ . Thus

$$\vec{a} = \vec{a}_n + \vec{a}_\tau. \quad (13)$$

Component \vec{a}_n , directed along the principal normal to the path, is called the normal acceleration. Component \vec{a}_τ , directed along the tangent to the path, is called the tangential acceleration. Their magnitudes are

$$a_n = \frac{v^2}{R} \quad \text{and} \quad a_\tau = \frac{dv}{dt} \quad (14)$$

and thus

$$a = \sqrt{a_n^2 + a_\tau^2} = \sqrt{\left(\frac{v^2}{R}\right)^2 + v^2}, \quad (15)$$

where v is velocity and R the radius of curvature of the path. The normal acceleration \bar{a}_n is always directed toward the center of the curvature of the path.

Of we break down the acting force \bar{F} into a normal component \bar{F}_n and tangential component \bar{F}_τ to the trajectory of movement, we obtain the following equations of motion in scalar form

$$F_n = ma_n = m \frac{v^2}{R} \quad (16)$$

$$F_\tau = ma_\tau = m \frac{dv}{dt}, \quad (17)$$

where v is the immediate velocity and R is the radius of the curvature of the trajectory. The normal component \bar{F}_n changes direction of velocity and is directed towards the center of the curvature of the path, which is why we call it centripetal force. The tangential component \bar{F}_τ changes the speed of the body. Given a constant speed of the body, tangential force $\bar{F}_\tau = \bar{0}$. Only centripetal force acts on a rigid body.

4. Equations of motion with constant mass in different spaces

Let velocity v of the body movement be indirectly proportional to the traveled path s . Then

$$\frac{ds}{dt} = \frac{k}{s}, \quad (18)$$

where k is the proportionality coefficient. Solving this differential equation yields

$$s = \sqrt{2\sqrt{kt+C}} \quad (19)$$

$$v = \frac{ds}{dt} = \frac{k}{\sqrt{2\sqrt{kt+C}}}. \quad (20)$$

Given initial conditions $t=0$, $s(0)=s_0$, $v(0)=v_0$ then

$$s(0) = \sqrt{2C} = s_0, \quad (21)$$

from which

$$C = \frac{s_0^2}{2}, \quad (22)$$

$$v(0) = \frac{ds(0)}{dt} = \frac{k}{\sqrt{2\sqrt{C}}}, \quad (23)$$

then

$$k = v_0 \sqrt{2\sqrt{C}} = v_0 s_0. \quad (24)$$

Thus the motion is described by the equation

$$s = \sqrt{2\sqrt{v_0 s_0 t + s_0^2/2}} \quad (25)$$

$$v = \frac{v_0 s_0}{\sqrt{2} \sqrt{v_0 s_0 t + s_0^2 / 2}}. \quad (26)$$

Let the acceleration of a body which has initial velocity v_0 be directly proportional to force F and indirectly proportional to body mass m , then the equation of motion is

$$F = b - kv, \quad (27)$$

where v is velocity, and b and k are constants. We must find force F at time t , if at initial time where $t=0$ we have

$$F = F_0 = b - kv_0. \quad (28)$$

For acceleration we can write

$$a = \frac{dv}{dt} = \frac{F}{m}. \quad (29)$$

Thus

$$\frac{dv}{dt} = \frac{b - kv}{m} \quad (30)$$

Solving this differential equation yields

$$t = -\frac{m}{k} \ln(b - kv) + C. \quad (31)$$

Initial conditions: for $t=0$ then $v = v_0$ hence

$$0 = -\frac{m}{k} \ln(b - kv_0) + C, \quad (32)$$

then

$$C = \frac{m}{k} \ln(b - kv_0). \quad (33)$$

Thus

$$t = \frac{m}{k} \ln \frac{b - kv_0}{b - kv} = \frac{m}{k} \ln \frac{F_0}{F}.$$

For force F we obtain the equation

$$F = F_0 e^{-\frac{kt}{m}}. \quad (34)$$

Let force F , acting on the body, depend on the velocity v in motion while overcoming resistance in space, which is proportional to velocity, thus

$$F = -kv, \quad (35)$$

where k is the proportionality coefficient. Based on Newton's laws

$$F = m \frac{dv}{dt}, \quad (36)$$

thus

$$m \frac{dv}{dt} = -kv \quad (37)$$

Solving gives the relationship for velocity

$$v = e^{-\frac{k}{m}t + C_1} = e^{C_1} e^{-\frac{k}{m}t} = C e^{-\frac{k}{m}t} .$$

Assuming that the following initial conditions are met, i.e. at $t = 0$, $v(0) = v_0$, then we obtain the equation

$$v_0 = C e^{-\frac{k}{m} \cdot 0} \quad \text{i.e. } C = v_0 . \quad (38)$$

Then

$$v = v_0 e^{-\frac{k}{m}t} . \quad (39)$$

5. Equations of motion of a rigid body (body) with variable mass

In nature and technical practice, we encounter the movement of a body with variable mass. This is the case for rockets, balloons, falling drops and ice crystals.

The differential equation of translatory motion of a rigid body whose mass m is dependent on time is of the form

$$\frac{d(m\vec{v})}{dt} = \vec{F} + \vec{u} \frac{dm}{dt} , \quad (40)$$

where \vec{F} is the resultant of all forces acting on the body and \vec{u} is the velocity of the added mass before being joined to the body (if $\frac{dm}{dt} > 0$), or that of detracted mass after being separated from the body (if $\frac{dm}{dt} < 0$).

From equation (18) we obtain the following (if we do not consider the dependence of m on speed)

$$m \frac{d\vec{v}}{dt} = \vec{F} + (\vec{u} - \vec{v}) \frac{dm}{dt} , \quad (41)$$

which is fundamentally Meshchersky's equation, which in 1897 was published by I. V. Meshchersky in his book "Dynamics of a Point of Variable Mass" (Meshchersky, 1897, 1904).

6. Equations of motion in econophysics

The gradual incorporation of the methods of theoretical physics into economics during the 20th century has led to econophysics becoming part of basic theoretical research in economics (Zeithamer, 2012a).

Equation (37) can be rearranged to

$$\frac{dv}{dt} = -\frac{k}{m}v = -Av . \quad (42)$$

The first time derivation of velocity is, as we know from the above, the acceleration of motion in the given space. If we want to determine the rate of change of this acceleration, we take the second time derivative of velocity

$$\frac{da}{dt} = \frac{d^2v}{dt^2} = -A \frac{dv}{dt} = j . \quad (43)$$

The expression on the left side of equation (43) denotes j , or “jerk”, in units of $\frac{m}{s^3}$.

If the market value of a commodity is quantitatively determined only by the market price n of the commodity, we can now make the general assumption that the instantaneous acceleration of the reduction of the market value is directly proportional to the instantaneous rate of reduction of the market value (Zeithamer, 2010). Then the deterministic differential equation of price which expresses this model is

$$\frac{d^2n}{dt^2} = -A \frac{dn}{dt}, \quad (44)$$

where $A > 0$ is the proportionality constant, and a negative sign is used to indicate that n , the market value, is a decreasing function of time. The initial conditions now are that over time $t = 0$ the market value is $n(0) = n_0$ and $\frac{dn}{dt}(0) = r_0$.

By directly comparing equations (43) and (44) we get analogous equations of motion for commodity price n and velocity of the body in a previously defined environment. The instantaneous commodity relative depreciation RD is defined by a non-linear deterministic differential equation of the form

$$\frac{d^2RD}{dt^2}(t) = B \frac{dRD}{dt}(t) - A \frac{dRD}{dt}(t)RD(t), \quad (45)$$

Where $A > 0, B > 0$ are constants of proportionality and t is time, $t \in \langle t_0, t_e \rangle$ (Zeithamer, 2012b). If we express equation (45) in accordance with analogous equations (43) and (44) above, we get an equation of motion expressed through the quantity of “jerk” in the form

$$j = (A \cdot RD(t) - B)^2 \frac{dRD}{dt}(t) - A \left(\frac{dRD}{dt}(t) \right)^2, \quad (46)$$

where $\frac{dRD}{dt}(t)$ corresponds to the velocity v of motion of the rigid body.

A more detailed approach to modeling the process of falling prices with acceleration can be found in the following works (Zeithamer 2010, 2011a, 2011b, 2012b).

7. Conclusion

This contribution was inspired by the works of Ing. Tomáš Zeithamer, Ph.D. (Zeithamer 2010, 2011a, 2011b, 2012a, 2012b), who has been systematically examining synergetics and econophysics since 1986. The main objective of this work was to verify methods of deriving equations of motion for commodity pricing in economic theory based upon the work of T. Zeithamer in comparison to the equations of motion of classical mechanics based on Newton’s laws of motion. A secondary objective of this work was to outline the possible future development and use of equations derived from classical Newtonian mechanics in theoretical economics. From the analysis of equations of motion for the motion of a rigid body with constant mass and variable mass, it is shown that the method for deriving equations of motion for the immediate price of a commodity as well as the immediate relative depreciation of the commodity and immediate relative price of the commodity proposed by

T. Zeithamer is in accordance with the conclusions drawn by classical mechanics and is a new and promising direction for basic economic and physical research. This method constitutes the basis of a new system for training and preparing expert appraisers for their work, founded upon the causal mechanisms of changes in the market value of commodities.

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4th International Conference on New Horizons in Education

Possible uses of deterministic equations of motion in commodity price theory and for training appraisers

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Abstract

Linear and nonlinear deterministic motion equations are used to describe the degressive, progressive and progressive/degressive development of socio-physical system states over time. A homogenous linear differential equation of the second order with constant coefficients is derived to describe the degressive as well as progressive development of the instantaneous relative depreciation of a commodity and the instantaneous relative price of a commodity over time in a model of market structure with perfect competition. A homogenous nonlinear differential equation of the second order is derived to describe the progressive/degressive development of the instantaneous relative depreciation of a commodity over time in a model of market structure with perfect competition. An analogous approach is used to describe the development of instantaneous relative commodity price.

Keywords: Depreciation; differential equation; econophysics; equation of motion; training appraisers.

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Introduction

The systematic use of methods of theoretical and mathematical physics in basic and applied research in the development of the states of economic systems can be relatively reliably traced to the end of the first half of the 19th century and especially the Cambridge and Lausanne Schools of Economics (Zeithamer, 2012a).

Economic phenomena and processes at that time were described and analyzed using analogies between the evolution of physical systems and the evolution of economic systems. Biographical research has shown that one of the reasons for the successful application of theoretical physics in economics is that many economists had initially studied physical and mathematical sciences, or fields related to the physical or mathematical sciences* (Zeithamer, 2012a).

The gradual spread of methods taken from theoretical and mathematical physics to economics during the 19th and especially the 20th century eventually led to the beginning of basic theoretical research, which in the 21st century consists of the systematically targeted application of theoretical, mathematical and statistical physics to economics (Mantegna & Stanley, 2000; Drozen, 2003, 2008; McCauley, 2004; Chakrabarti, Chakraborti & Chatterjee, 2006; Voit, 2010; Zeithamer, 2010, 2012b). A part of this basic theoretical research in economics has become known as econophysics. Great confidence in the power of mathematical statistics, which is justified in measuring techniques (Eadie, Drijard, James, Roos, & Sadoulet, 1971; James, 2010; Štroner & Pospisil, 2011), is somewhat weakened by works which, based on detailed knowledge of statistical methods and their use in physics itself, come to the conclusion that it is not possible using statistics alone to determine the causal mechanisms that explain observed phenomena in economics (Roehner, 2002, 2007; Chakrabarti, Chakraborti & Chatterjee, 2006; Voit, 2010; Abergel, Bouchaud, Foucault, Lehalle, & Rosenbaum, 2012; Abergel, Chakrabarti, Chakraborti, & Ghosh, 2013).

We encounter similar conclusions regarding the state of knowledge in a number of related multi-disciplinary and interdisciplinary scientific fields. For example, let us consider research into the relationship between the Sun and the Earth, where several works demonstrate the need to establish causal mechanisms for phenomena independent of the methods of mathematical statistics: 1) Physics of the Sun-Earth Relations (Akasofu & Chapman, 1972; Gonzales & Burch, 2011); 2) Helimeteorology of the Earth's Atmosphere (Pérez-Peraza & Libin, 2012); 3) Biophysics of the Sun - Earth relations (Sulman 1982a, 1982b; Kiefer, 2005).

Finding causal mechanisms which explain observed socio-physical phenomena on a gravitational, electromagnetic or nuclear level is a very difficult, long and costly task. The same applies to the behavior of experts in commodity price theory, thoroughly based on the knowledge of basic physical force interactions. The theoretical constructions presented in this work are intended to facilitate solving both tasks mentioned in future modern commodity price theory. Specifically, there are linear and non-linear elementary kinematic equations, which do not explain the phenomena observed in the socio-physical system with interactions of force, but merely describe the developing state of the socio-physical system. While not easy to solve, these kinematic equations lead to quantifiable mechanisms which explain observed developments in the state of the socio-physical system using analytical dynamics, i.e. force interactions. The analytical dynamics of socio-physical

* Giovanni Battista Antonelli (17. 9. 1858 – 12. 5. 1944) began his early studies at the Technical Institute of Leghorn and then continued to study at the University of Pisa where, in 1882, he received a doctorate in mathematics and in 1884 became a professor of mathematics. After this, he completed his engineering studies at the Polytechnic School in Milan, where he was awarded the title of civil engineer (Antonelli, 1998). William Stanley Jevons (1. 9. 1835 – 13. 8. 1882) studied chemistry and botany at University College School at London, where he obtained also knowledge of the physical sciences and logic (Mosselmans, 2012). Alfred Marshall (26. 7. 1842 – 13. 7. 1924) studied mathematics and physics at Cambridge University, where he also taught mathematics (Zemánek, 2006). Vilfredo Pareto (15. 7. 1848 – 19. 8. 1923) studied at the Polytechnic Institute of Turin, where he wrote his dissertation on the theory of elasticity „Principi fondamentali della teoria della elasticità de corpi solidi in 1869 (Pareto, 1869). Marie Esprit Léon Walras (16. 12. 1834 – 5. 1. 1910) studied mine engineering at École de Mines in Paris, where he acquired knowledge not only of mathematics and general physics, but also the statics and the dynamics of mine constructions (Jaffé, 1965).

systems is not the subject of this work, however, it is one of the subjects of basic and applied economic and physical research being conducted by the author of this article.

2. Linear motion equation of commodity state without inflexion

The late nineteenth century is a period in which there was a synthesis of the partial knowledge of economic laws formulated by the previous generation of economists, and increased attempts to describe these laws using the language of physics and mathematics, comprising both the mathematical and physical meaning of the differential of variable quantities; the foundations of “econophysics in the broader sense” were laid and expanded (Zeithamer, 2012a).

The first half of the twentieth century witnessed a deepening integration of economics, mathematics, and physics. At the Czech School of Economics during this time, no reliable sources have yet been found indicating such an interdisciplinary approach or related original work. At the end of the twentieth century however, we do find an economist at the Czech School of Economics whose work represents econophysics in the broader sense. This economist is František Drožen (born 30. 5. 1949), who was inspired by the work of German engineer August Wöhler (22. 6. 1819 – 21.3.1914)[†]. František Drožen constructed an analogy between the process of fatigue crack growth in axles and the process of price reduction for goods. This approach to modeling the process of falling prices for goods can be found in its final form in several of Drožen’s works (Drožen, 2003, 2008).

In this work it is assumed, as in Drožen’s works (Drožen, 2003, 2008), that the market value of a commodity is quantifiably determined only by the market price n of the commodity.

We now make the generalizing assumption that the instantaneous acceleration of reduction of the market value is directly proportional to the instantaneous rate of reduction of the market value (Zeithamer 2010). Then the deterministic differential equation of price which expresses this model is

$$\frac{d^2 n(t)}{dt^2} = -A \frac{dn(t)}{dt} , \quad (1)$$

[†] From 1855 – 1871 August Wöhler examined the causes of fatigue cracks in the wheel shafts of railway cars and the dependence of the number of cyclic loads until axle fracture at stress amplitude. The graphic depiction of Wöhler’s findings in the form of Wöhler curves is still used today in the investigation of metal fatigue in various constructions (Wöhler, 1855, 1870; Timoshenko, 1983; Schutz, 1996).

where $A > 0$ is the proportionality constant, and a negative sign is used to indicate that n , the market value of goods, i.e., a price, is decreasing and the acceleration of reduction of the market value decreases over time. The initial conditions now are that over time $t=0$ the market value is $n(0) = n_0$ and $\frac{dn}{dt}(0) = r_0 < 0$. A more detailed approach to modeling the process of falling prices with acceleration can be found in the following works (Zeithamer 2010, 2011a, 2011b, 2012b).

3. Linear motion equation of commodity relative depreciation

In a convergent sequence of market structures[‡] with perfect competition, the instantaneous commodity relative depreciation RD is defined by the magnitudes of instantaneous commodity relative depreciation according to the relationship (Drozen, 2008; Zeithamer, 2011b)

$$RD(t) = \frac{w(t) - w(t_0)}{w(t_0)}, \quad (2)$$

where $w(t_0) = w_0$ is the magnitude of instantaneous commodity depreciation at the initial time t_0 and $w(t)$ is the magnitude of instantaneous commodity depreciation at time $t (t \geq t_0)$. In addition to instantaneous commodity relative depreciation RD , the instantaneous commodity relative price RP is also defined under the condition of perfect competition by the magnitudes $RP(t)$ at time t according to the relationship (Drozen, 2008; Zeithamer, 2011b).

$$RP(t) = \frac{p(t_0) - p(t)}{p(t_0)}, \quad (3)$$

[‡] In the model of a market structure with perfect competition we assume the following conditions are met: a) in each market there are a large number of buyers and sellers, none of which are strong enough to influence the price or output of a sector; b) all goods are homogeneous; c) there is free entry to and exit from all markets; d) all manufacturers and consumers have perfect information about prices and quantities traded on the market; e) companies attempt to maximize profit and consumers attempt to maximize utility; f) companies have free access to information about technologies (Goodwin, Nelson, Ackerman & Weisskopf, 2009; Nicholson & Snyder, 2008).

where $p(t_0) = p_0$ is the magnitude of instantaneous commodity price p at the initial time t_0 of monitoring the instantaneous commodity price on a select model market and $p(t)$ is the magnitude of instantaneous commodity price at time $t \geq t_0$.

Instantaneous commodity depreciation w is a real composite function of time, i.e. $w(t) = w(p(t))$, where $w(p)$ is the continuous decreasing real function of instantaneous commodity price p and instantaneous commodity price p is a continuous decreasing real function of time t . If we monitor the development of instantaneous commodity depreciation at time interval $\langle t_0, t_e \rangle$, then for the first derivation of functions $w(p)$ and $p(t)$ it holds that $\frac{dw}{dp}(p) < 0$ for $p \in \langle p(t_e), p(t_0) \rangle$ and $\frac{dp}{dt}(t) < 0$ for $t \in \langle t_0, t_e \rangle$. It directly follows from these relationships

that for the interval $\langle t_0, t_e \rangle$, $\frac{dw}{dt}(t) = \frac{dw}{dp}(p(t)) \cdot \frac{dp}{dt}(t) > 0$. This means that instantaneous commodity depreciation w is a continuous increasing real function of time t , which corresponds to trends for common commodities over time. Then, instantaneous commodity relative depreciation RD is also a continuous real function at interval $\langle t_0, t_e \rangle$ and $\frac{dRD}{dt}(t) > 0$ for every time $t \in \langle t_0, t_e \rangle$.

Let us assume that the magnitude of instantaneous commodity relative depreciation RD over time t increases with acceleration and the acceleration of instantaneous commodity relative depreciation increases in direct proportion to the instantaneous speed of change of instantaneous commodity relative depreciation at time t . The motion equation of instantaneous commodity relative depreciation is thus (Zeithamer, 2011b)

$$\frac{d^2 RD}{dt^2}(t) = B \frac{dRD}{dt}(t), \quad (4)$$

where B is the constant of proportionality, $B > 0$. In addition, let initial conditions be met where $RD(t_0) = RD_0 > 0$, $\frac{dRD}{dt}(t_0) = v_0 > 0$, so that the solution of differential equation (4) at interval $\langle t_0, t_e \rangle$ is then

$$RD(t) = RD_0 - \frac{v_0}{B} + \frac{v_0}{B} e^{B(t-t_0)}. \quad (5)$$

From here it directly follows that instantaneous commodity relative depreciation RD is a purely convex function at interval $\langle t_0, t_e \rangle$. This means that the increase in instantaneous commodity relative depreciation at interval $\langle t_0, t_e \rangle$ is progressive.

Let us assume that instantaneous commodity relative depreciation RD increases with acceleration at time t again and the acceleration of instantaneous commodity relative depreciation increases in direct proportion to the speed of change of relative depreciation at time t while the constant of proportionality is negative. The motion equation of instantaneous commodity relative depreciation is then (Zeithamer, 2011a; Zeithamer, 2011b)

$$\frac{d^2 RD}{dt^2}(t) = -B \frac{dRD}{dt}(t), \quad (6)$$

where $(-B)$ is the constant of proportionality, $B > 0$. In addition, let initial conditions be met

where $RD(t_0) = RD_0 > 0$, $\frac{dRD}{dt}(t_0) = v_0 > 0$, so that the solution of the differential equation (6) at interval $\langle t_0, t_e \rangle$ is then

$$RD(t) = RD_0 + \frac{v_0}{B} - \frac{v_0}{B} e^{-B(t-t_0)} \quad (7)$$

From here it directly follows that instantaneous commodity relative depreciation RD is a purely concave function at interval $\langle t_0, t_e \rangle$. This means that the increase in instantaneous commodity relative depreciation at interval $\langle t_0, t_e \rangle$ is degressive. The progressive increase of instantaneous commodity relative depreciation is characteristic, for example, of certain types of food goods, while degressive increase of relative depreciation may be seen in certain commodities in the automotive industry.

3. Non-linear motion equation of commodity state with inflexion

In this section of our work we again presume the following conditions to be met: (1) the commodity is on one of the markets of the model of market structure with perfect competition at initial time t_0 ; (2) at time t_0 the commodity is found in its initial state, which is uniquely determined by the magnitude of instantaneous commodity depreciation $w(t_0) = w_0$.

Let the acceleration of $\frac{d^2RD}{dt^2}$ of the instantaneous commodity relative depreciation be the sum of two components, i.e.

$$\frac{d^2RD}{dt^2} = \left(\frac{d^2RD}{dt^2} \right)_1 + \left(\frac{d^2RD}{dt^2} \right)_2 \quad (8)$$

The first component of acceleration is a consequence of physical and chemical processes, which cause the first component of the instantaneous acceleration to increase in direct proportion to the magnitudes of rate of change of the instantaneous commodity relative depreciation, i.e.

$$\left(\frac{d^2RD}{dt^2}(t) \right)_1 = B \frac{dRD}{dt}(t), \quad (9)$$

where B is the proportionality constant, $B > 0$ and $t \in \langle t_0, t_e \rangle$. The second component of acceleration results from physical and chemical processes (also including socio-psychological processes in physio-chemical approximation), which cause the second component of the instantaneous acceleration to be directly proportional to the product of the magnitude of rate of change of the instantaneous commodity relative depreciation $\frac{dRD}{dt}(t)$ and the magnitude of instantaneous commodity relative depreciation $RD(t)$, while the proportionality constant is negative, thus

$$\left(\frac{d^2 RD}{dt^2}(t) \right)_2 = -A \frac{dRD}{dt}(t) RD(t) \quad (10)$$

where $(-A)$ is the proportionality constant, $A > 0$, $t \in \langle t_0, t_e \rangle$.

By substituting relations (9) and (10) into equation (8), we obtain the following motion equation for the acceleration of instantaneous commodity relative depreciation (Zeithamer, 2012 b)

$$\frac{d^2 RD}{dt^2}(t) = B \frac{dRD}{dt}(t) - A \frac{dRD}{dt}(t) RD(t) \quad (11)$$

where $A > 0$, $B > 0$, $t \in \langle t_0, t_e \rangle$.

One of the subsets of the set of solutions for motion equation (10) is given by

$$RD(t) = \frac{y_2 + y_1 e^{\sqrt{D}(t+C_2)}}{1 + e^{\sqrt{D}(t+C_2)}} \quad (12)$$

where for constants D, y_1, y_2, C_2 it follows that $D = B^2 + 2AC_1$, $y_1 = \frac{B + \sqrt{D}}{A}$, $y_2 = \frac{B - \sqrt{D}}{A}$,

$0 < |y_2| < y_1, y_2 < 0$, $-\frac{B^2}{2A} < C_1 < 0$, $C_2 = \frac{1}{\sqrt{D}} \ln \left(\left| \frac{y_2}{y_1} \right| \right) - t_p$. At time $|t_p|$ the value of instantaneous commodity relative depreciation is zero. The given subset of the solutions of motion equation (10) shows the progressive – degressive increase of instantaneous commodity relative depreciation with an inflexion point at time $t = -C_2$ and a limit at $\lim_{t \rightarrow +\infty} RD(t) = y_1$.

4. Conclusion

Assuming that the market value of the commodity at time t is fully determined exclusively by the value of the instantaneous commodity price $p(t)$, methodological procedures taken from theoretical physics were used to construct motion equations for instantaneous commodity relative depreciation RD . Motion equations (4) and (6) for the progressive and degressive increase of instantaneous commodity relative depreciation are linear differential equations of the second order with constant coefficients assuming market structures with perfect competition. Motion equation (11) of instantaneous commodity relative depreciation for the progressive/degressive growth of depreciation is a non-linear differential equation of the second order with

constant coefficients. Motion equation (11) was also derived for instantaneous commodity relative depreciation on a market with perfect competition. In the solutions set for motion equation (11), there is the subset of solutions which model progressive/degressive growth of the magnitudes of instantaneous commodity relative depreciation with a single inflexion point.

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4th International Conference on New Horizons in Education

Potentials of Entrepreneurial Design Thinking® For Entrepreneurship Education

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Abstract

Although design thinking becomes increasingly attractive for business management, it has not yet been sufficiently recognized and discussed in the context of entrepreneurship and especially not in the context of entrepreneurship education. The objective of this contribution is to conceptually analyze the potentials of EDT as being a rather new method for entrepreneurship education in universities. The results of our work show that the characteristics of EDT can enhance entrepreneurship education. In addition we reveal that EDT offers beneficial guidelines for the design of entrepreneurship education programs.

Keywords: Design thinking, entrepreneurial thinking, Entrepreneurial Design Thinking®, entrepreneurship education, teams.

1. Introduction

Although design thinking becomes increasingly attractive for business management, it has not yet been sufficiently recognized and discussed in the context of entrepreneurship and especially not in the context of entrepreneurship education. Still, there seems to be a gap between the design focus on creativity and invention on the one side and the entrepreneurial innovation focus on the other side (Cruickshank, 2010).

According to Romme (2003), design can be understood as an ideal-typical mode of engaging in scientific research and as an alternative to a natural sciences- and a humanities-based mode. Especially, design science involves inquiry into systems that do not yet exist. It is based on contributing to the so-called 'relevance gap' between theory and practice by finding out about if systems will work (epistemological notion of pragmatism), and it draws on 'design causality' in order to produce scientific knowledge, which is actionable and also open to validation (Van Aken & Romme, 2009; Van Aken, 2004; Romme, 2003). Against this background, design thinking is the basic methodology in order to 'build up' ideas as the outcome of creative processes. According to Simon (1969, 55), this process has seven stages (define, research, ideate, prototype, choose, implement and learn) which can occur simultaneously and can be passed through repeatedly. Similar stage models have been developed by institutions like the Hasso Plattner Institute of Design at Stanford University (dschool.stanford.edu)

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in Stanford, USA, or most recently the School of Entrepreneurial Design Thinking® – The ED-School (www.ed-school.com) at the University of Koblenz-Landau in Koblenz, Germany.

In the following, we intend to overcome the gap between creativity and entrepreneurial innovation by introducing the concept of Entrepreneurial Design Thinking® (EDT). Based on the body of knowledge concerning design science, design thinking and entrepreneurship, we define EDT as a team-diversity-based approach for treating user-centered problems as entrepreneurial opportunities within an iterative process supported by the use of creativity fostering tools and environments.

The objective of this contribution is to conceptually analyze the potentials of EDT as being a rather new method for entrepreneurship education in universities. The results of our work show that the characteristics of EDT can enhance entrepreneurship education. In addition we reveal that EDT offers beneficial guidelines for the design of entrepreneurship education programs.

The research design of this contribution is mainly conceptual however we also implicitly integrate our first experiences with workshops that we conducted in EDT classes at the University of Koblenz-Landau. In the following, we will discuss different models of design thinking and conceptually develop an understanding for the characteristics of EDT. Afterwards we will formulate a model of EDT, introduce its main characteristics and discuss the implications of this model for entrepreneurship education.

2. Theoretical Background

2.1. Design and Design Theory

The concept of design has a long tradition in organization theory as well as in management science, not least by virtue of the seminal work of Simon (1969). Thus it is not surprising that the field of design management evolved very successfully over the last decades in both disciplines (Cooper & Junginger, 2008). In very general terms, design is about the creation of meaning and describes both the results (systems, artifacts et cetera) and the development processes, which lead to the respective outputs (Kazmierczak, 2003). Design management conceptually links the potential benefits of creative design resources with business-oriented management decisions and the potential advantages of the use of management know-how with design processes and related outcomes (Best, 2006). Besides its business orientation, design management's contributions as a research discipline are rooted in what is called design research and design science.

In his work Owen (1998) identified that design always consists of two phases: (1) an analytical phase consisting of searching an understanding and (2) a synthetic phase consisting of experimentation an invention (Figure 1).

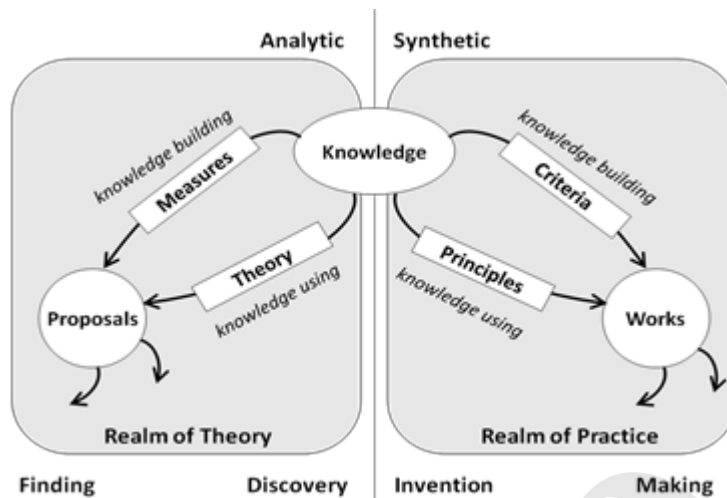


Figure 1: Owen's model of knowledge generation in design theory (Owen, 1998)

Owen (1998) sees those phases in a framework that can describe the process of knowledge development through design. He suggests that the design process has both analytic and synthetic elements, and that it operates in both the theoretical and practical realms. In the analytic phases of design, one focuses on finding and discovering, while in the synthetic phases of design, one focuses on invention and making. Movement between the theoretical and practical realms happens as participants in the process draw insights from what they have learned in the world of practice, convert it to abstract ideas or theories, and then translate those theories back into the realm of practice in the form of artifacts or institutions. He proposes that this is the elementary innovation process that fits all fields, although tools and techniques might differ in each field.

2.2. Design Thinking Theory

The range of understanding of design thinking is broad and diverse across several disciplines. These definitions cover generic descriptions like “approaching managerial problems as designers approach design problems” (Dunne & Martin, 2006, 512) to narrow definitions of design thinking as “a distinctive process of mind which manifests itself in shape, configuration or composition of pattern or color containing performance (functionality), image (aesthetics, look, feel) and style (a manner of doing things, especially in a fashionable way) to produce a product, process, service, user experience, or an organic change” (Ilipinar et al., 2008, 6). As an effort to define design thinking by delimitation, Liedka (2004) compares science and design and infers that science uncovers actual conditions while design envisions options. Romme (2003) compares design with science and with humanities as different research paradigms and connects the disciplines with the proposal of a design-science interface, and arranges a circular design within. Furthermore, the independence and membership of design thinking to disciplines throughout different sciences and arts is being discussed (Johansson & Woodilla, 2009). Buchanan (1992) even formulates a ‘doctrine of placements’, describing design thinking as the systematic pattern of conceptual repositioning designs (including symbols, material objects, activities, organizations or complex systems).

2.3. *The Entrepreneurship-Design-Thinking Nexus*

Entrepreneurship and design thinking seem to be two disciplines, which are divided and thematically far away from each other. O'Grady (2008) even reveals a 'culture clash' between social sciences and design when he compares the different cultures of management and design students. Although there are interfaces between those disciplines, like in organizational design, there has always been the limitation of comparability due to different attitudes towards research: while design majoritarian excludes prediction as a *modus operandi* and embraces intuition and experiments, social sciences (including entrepreneurship) rely on prediction as their source of knowledge (Dunnbar & Starbuck, 2006). Even while design thinking is promoted as one of five future entrepreneurial minds (Duening, 2010) it is limited to the fields of 'organizing' and 'operating'.

Despite this fundamental difference in researching approaches and allocations, design thinking and entrepreneurship seem to be a promising combination as a teaching approach in entrepreneurship education. Especially in the area of scientific entrepreneurship, design thinking can help to build sustainable concepts that are no more just technology-driven but also consider real-live-problems as impulses for development. In order to identify the possible benefits from this combination, we first need to unveil the nexus of entrepreneurship and design thinking. In literature, we can find examples that discuss similarities between those two disciplines. Following we will discuss the notion of entrepreneurs as designers (actors), the similarity in environmental condition, the similarity in the requirement of character and the role of creativity as a tool.

Similarity of actors: Boland et al. (2008) for example describe entrepreneurs as designing managers. In a similar approach, Sarasvathy et al. (2008) indicate that entrepreneurs and designers have similarities by unveiling the entrepreneurs' attributes as designers. In their work they point out that entrepreneurs are designers on two levels. First they design entrepreneurial artifacts, which can be new organizations, markets or institutions. Second their artifacts design their own environment. Furthermore in design thinking (Dunne & Martin, 2006) as well as in entrepreneurship (Foo et al., 2005) the advantages of multidisciplinary teams are discussed. Both disciplines consider team-based approaches as central elements.

Similarity of environment: Furthermore entrepreneurs deal with uncertainty that makes it impossible to calculate probabilities for future consequences (Sarasvathy, 2004; Sarasvathy et al., 2008). This environmental condition is also identified in the context of design with the notion of 'wicked problems' that designers face (Buchanan, 1992). In both disciplines uncertainty is a major force that drives behavior.

Similarity in character: In entrepreneurship as well as in design thinking there is a distinct need for empathy. Entrepreneurs use empathy in order to gauge the appropriateness of novel ideas (Chiles et al., 2010). It helps entrepreneurs to understand the problems (prospect) customers have. Designers use empathy in the same manner when they imagine the world from a user perspective, (Brown, 2008) and understand (prospect) users' problems (Dunne & Martin, 2006). This attribute allows for entrepreneurs and designers to address explicit or latent needs. Especially the identification of latent needs enables the creation of new markets.

Similarity in creativity as a tool: Creativity is like empathy an important element in both disciplines. In design thinking creativity is the core of discussion in all works (Ping-Yong Lee, 2008). Li (2002) describes design as being the synthesis of creativity as the ability to imagine new thing and innovation as the ability to bring those new things together. In entrepreneurship creativity is required in order to identify opportunities that lead to new ventures (Ko & Butler, 2007). Matthews (2010) argues that creativity is the intersection between entrepreneurship and design. She first analyzes entrepreneurship, design and creativity as independent processes and concludes that creativity is the main similarity between entrepreneurship and design.

As the following figure summarizing highlights, design thinking and entrepreneurship have similarities in actors, environmental conditions, character and tools.

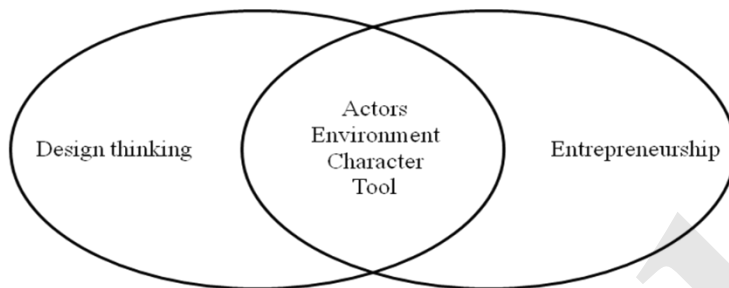


Figure 2: The entrepreneurship-design-thinking nexus

3. The essence of design thinking

Design thinking was gradually derived from classical design domain into various disciplines (Lindberg et al., 2010). Different applications of design thinking accompany different process models and therefore we find variety of understandings of what design thinking is ought to be. For the formulation of Entrepreneurial Design Thinking® (EDT) as a teaching method for entrepreneurship education, a solid definition of design thinking and its process is needed. A review of different models of design thinking and their interpretation will help to postulate a generic definition of design thinking and its process for the 'entrepreneurial purpose'. Doing this, we will be able to understand the basic principles of design thinking that sum up into a general understanding of design thinking. Therefore selected articles concerning 'design thinking' will be analyzed on two levels - design thinking comprehension and process model.

3.1. Design Thinking: A Literature Review

In an article published through Harvard Business Review, Brown (2008) introduces design thinking and expresses his comprehension by concentrating on the executers' characteristics of the design thinking process: the 'Design Thinker'. In his understanding a 'Design Thinker' has to provide empathy towards people he works with, apply integrative thinking, exhibit optimism, advocate experimentalism and embrace collaboration. Design thinking is described as "...a discipline that uses the designer's sensibility and methods to match people's needs with what is technological feasible and what a viable business strategy can convert into customer value and market opportunity" (Brown, 2008, 2).

He declares the design thinking process as a system of three phases (inspiration, ideation and implementation), while he emphasizes the circular mode of the spaces and the possibility to loop backwards if needed (Figure 3). In Brown's concept, inspiration as the beginning of the design thinking process represents the recognition and understanding of a problem and opportunity. Subsequently in the space of ideation several ideas are generated,

which provide possible solutions to the problem. The following space of implementation employs the idea execution and the learning from the process so far.

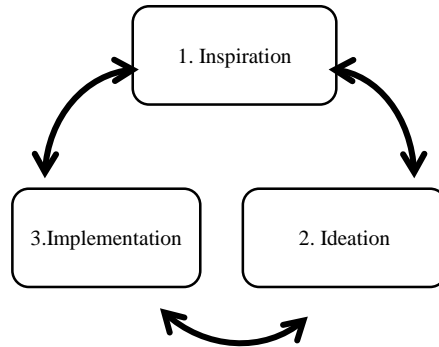


Figure 3: Design thinking spaces (Brown, 2008)

Clark & Smith (2008) describe design thinking more as a tool that helps business executives to adopt design instincts and methods. They see design thinking as a universal problem-solving method that can be implied in every profession. In their understanding design thinking enhances three types of intelligence that are necessary for innovation: (1) emotional intelligence as the ability to work with empathy, (2) integral intelligence for being able to bring different ideas together and keeping the big idea in mind while working on details and (3) experimental intelligence as an experience learning method. The formulated design thinking process exhibits five steps (Figure 4), beginning at understanding the problem, continuing by understanding the customer through observation, conceptualizing a solution and validating it. The last step is the implementation of the solution. Between validation and observation of the customer there can be iterating loops.

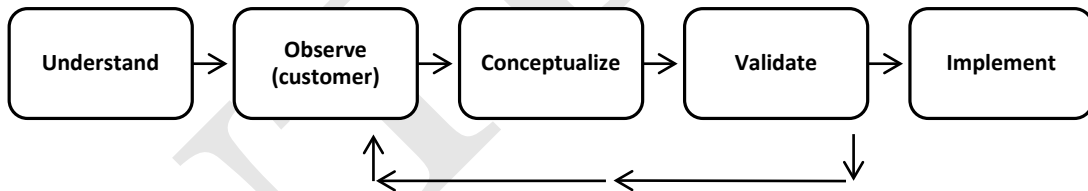


Figure 4: The experience design method at IBM (Clark & Smith, 2008)

On an article written by Dunne & Martin (2006), design thinking is described as the mental process that designers use. Furthermore a certain attitude of curiosity, as well as a design attitude is needed, meaning the designers perception of problems' constraints. Furthermore they formulate the request for integrative thinking, which provides a holistic view by identifying important relationships and extending the notion on salient aspects. Iterative and collaborative work is recognized as essential for design thinking. Both kinds of work emphasize the role of constraints as triggers for creative solutions and the benefits of collaboration with diverse team members. Regarding the process of design thinking the authors formulate 'The Cycle of Design Thinking' (Figure 5), which consists of four elements: generalize, generate ideas, predict consequences and test. This process model also exhibits a circular buildup, which benefits the work with difficult problems.

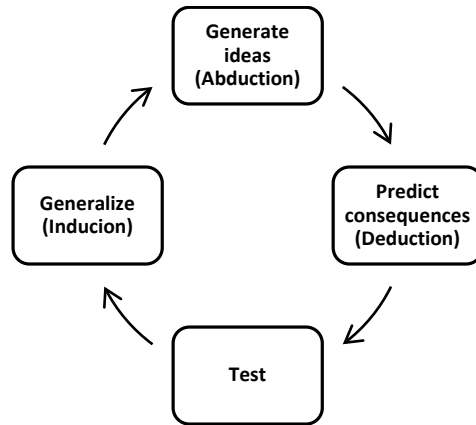


Figure 5: The Cycle of Design Thinking (Dunne & Martin, 2006)

Lindberg et al. (2010) introduce the design thinking process according to the approach of the Stanford d.school. They introduce their approach as a didactic process model that is used for design education (Figure 5). The main task of the model is to balance flexibility as well as sequentiality. Therefore the model is arranged in a linear manner but considers forward and backward linkages. In the phases of understand and observe the analysis of problems is essentially important for the following process of problem solution and is neglected in a lot of approaches. Within this approach great value is set upon this phase of the problem solution and big space within the process is acknowledged to it. Thereby especially empathy, the ability to put oneself in the situation of other people and to ‘change the perspective’ is emphasized. In the following phase of point of view gathered data is organized and insights are defined. In the phases of ideate and prototype creative solutions are ascertained and corresponding prototypes are produced. Especially brainstorming and modeling characterize these phases. In the last phase of test the prototypes are implemented and tested in real application. Corresponding modifications are made if there is any demand on correction.



Figure 6: The Design Thinking Process at Stanford's d.school (Plattner et al., 2009)

3.2. A Generic Design Thinking Process

Regarding the literature review we can identify certain characteristics that are mentioned throughout all the design thinking concepts. In the following we will describe those characteristics. Furthermore we will develop a design thinking process that considers the above introduced processes.

Iterative, stepwise process: Although the models discussed above provide different processes, all of them exhibit an iterating buildup of some sort, from several looping steps (Clark & Smith, 2008; Stanford, 2009) up to complete circular structures (Dunne & Martin, 2006). The concept of process is the central promoted element in design thinking. As shown above every finding in the literature exhibits a process consisting of several phases as the key element of design thinking. The understanding of process is essential for making design thinking teachable as well as tractable (Chan, 2008). Furthermore, a process in design thinking assures that problems are treated until they reach the status of solutions or solution suggestions. Thus, the design thinking process can be regarded as the fundament of design thinking. In literature, the distinct term ‘procedural design thinking’ (Chan, 2006) emphasizes the importance of a ‘process aspect’ in design thinking. The iterative, stepwise process is due to the ‘wicked’ problems, design thinkers have to face (Buchanan, 1992). These problems are ill-formulated and characterized by provide confusing information and exhibit complex interdependencies. Therefore a linear technique would not be suited to address problems of wicked nature (Rylander, 2008; Buchanan, 1992). These problems are considered design thinkers’ challenges (Dunne & Martin, 2006). Apart from the amount and matter of the process steps, the tendency of implementing iteration is very clear. In addition, every design thinking process requires input (design problem) and produces output (solution or solution suggestions). The specification of input and output is depending on the particular scientific appliance of design thinking (e.g. management education). Furthermore the process of design thinking has to imply diverse elements, like activities, participants or guidelines. In summary we can formulate the standard that every design thinking process has to include iteration and stepwise processing in its structure.

Multidisciplinarity: The involvement of multidisciplinary teams in design thinking is promoted trough most of the literature (e.g. Dunne & Martin, 2006; Brown, 2008; Miosala & Toikka, 2008; Chan, 2008; Ungaretti et al., 2009). The source for this finding is the multidisciplinary affordance of the former introduced ‘wicked’ problems. Designers have to face challenges that arouse questions in several disciplines and therefore have to import knowledge from different sciences - they “are accustomed to forming ad-hoc teams and collaborating for a specific purpose” (Dunne & Martin 2006, 518). Hence design thinking has to enable and demand multidisciplinary teamwork. Multidisciplinary teamwork as an element of design thinking becomes recognized by phrasing the term ‘collaborative design thinking’ (Chan, 2008), giving this element an own space in design thinking theory.

The generic design thinking process is the result of our literature analysis (Figure 7). In the first phase of comprehension the main goal is to gain an understanding of a problem or problem situation. By observing behavior, simulating problem situations and interviewing customer orientation enables problem understanding. In the following phase of consideration ideas are developed based on the deeply understood problem. Techniques like brainstorming and creativity-fostering tools like playful environments support the development of ideas. Afterwards, the phase of creation is guided by prototyping of solutions. The design thinking process winds up in the phase of check, when a solution is brought to field-experiments and confrontation with prospect users. In each phase there can be one or more steps back to former phases in order to deepen or restart work if necessary.

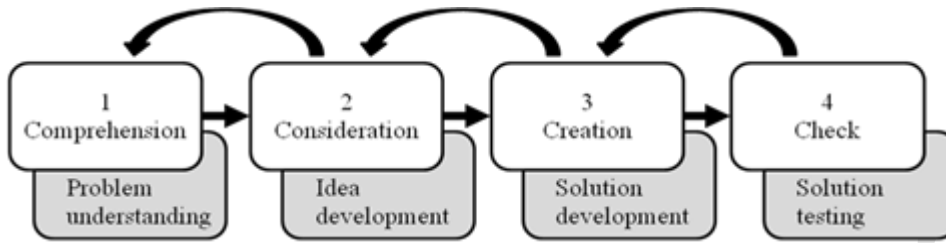


Figure 7: The generic design thinking process

4. The importance of Entrepreneurial Thinking

It is recognized that entrepreneurial thinking is not something someone is born with, but that it can be acquired (Krueger, 2003, 133; Gartner, 1988, 63; Minniti & Bygrave, 2001, 7). An entrepreneur learns through factual knowledge, experience and the interpretation of experience (Davenport et al., 1998, 43). This learning process is non-linear and continuous. The ability to identify a business opportunity depends on an entrepreneurs acquired knowledge (Hayek, 1945, 521f.; Gricnik., 2006, 1312) and ability to understand the problems of his customers (Shane, 2000, 452). Even more: the acquired knowledge enables an entrepreneur to interpret a situation as an opportunity (Shane, 2000, 452). Entrepreneurial thinkers exhibit a higher rate of alertness for opportunities (Kirzner, 1978, 35ff. & 65ff.; Kirzner 1997, 71f.) and intuition than other people (Allison et al., 2000, 32). Entrepreneurial learning builds on experience as the main source for knowledge as entrepreneurs reflect on their own actions (Dalley & Hamilton, 2000, 55). New experiences are combined with existing knowledge in order to expand it (Minniti & Bygrave, 2001, 5ff.). This is very similar to Owen's (1998) model of knowledge generation in design. Unexpected events cause a higher learning effect as they break routines (Jarvis, 1987, 167f.). The importance of experience is proven in a study conducted by Delmar & Shane (2006, 240), where they proofed that new ventures where more successful if they were founded by more experienced entrepreneurs. Opportunity identification is an essential entrepreneurial characteristic that is valuable for new venture creation. In entrepreneurship education we need students to learn how to create question instead of finding answers (Krueger, 2007, 132). This quality helps entrepreneurial student to understand and interpret problem situations as entrepreneurial opportunities. Considering the design thinking process, opportunity identification should be the first step, before students try to understand a problem – they should find it first.

According to Shane & Venkataraman (2000) entrepreneurs (1) discover, (2) evaluate and (3) exploit opportunities. So far, we discussed the concept of discovering (opportunity identification) and evaluating (design thinking). The last step refers to the exploitation of entrepreneurial opportunities. In the context of entrepreneurship education we understand the creation of a business model and writing of a business plan as the beginning of opportunity exploitation. Regarding the opportunity identification and design thinking process we can summarize, that students have found a problem, interpreted it as an opportunity and created and tested creative solutions. The entrepreneurial component of opportunity exploitation should now be introduced towards the end of the creative phases and lead to the creation of a business model based on the developed problem solution.

5. Introducing Entrepreneurial Design Thinking®

5.1. Characteristics of Entrepreneurial Design Thinking®

In the following the characteristics of EDT will be introduced and discussed.

Process: By discussing entrepreneurial thinking we identified entrepreneurial alertness as the main trigger in order to find and interpret opportunities. Entrepreneurial alertness as a main characteristic of entrepreneurial thinking is a precondition. Therefore it needs to be the first step in EDT. Only if a student is capable to identify a problem situation of a customer as an opportunity the student can consider this as a starting point for problem-solving. The exploitation of an entrepreneurial opportunity was introduced as the last phase of a combination of design thinking and entrepreneurship. Entrepreneurial thinking puts design thinking in brackets (Figure 8) and results in a concept for EDT as the combination of entrepreneurial thinking and design thinking.



Figure 8: Concept of Entrepreneurial Design Thinking®

The first phase in EDT is the identification of an opportunity which we label 'consciousness'. This marks the starting point for the next steps of comprehension, consideration, creation and check. The phase of opportunity exploitation is labeled 'carry out' and aims towards the development of business models and writing of business plans. The understanding of the design management process is essential for making design thinking teachable as well as tractable - this attempt is derived from researchers' effort to understand 'how one designs' (Chan, 2008). Furthermore, a process in design thinking assures that problems are treated until they reach the status of solutions or solution suggestions. Entrepreneurs face problems that are difficult to estimate, offer little information and intransparent links. As we already discussed design thinking and entrepreneurship literature acknowledges this circumstance (Buchanan, 1992; Sarasvathy et al., 2008; Sarasvathy, 2004). Iterative procedures account for this problem situation: students can revisit former work steps with new information and redesign their solution. The iterative structure of EDT allows for setbacks and therefore fosters experimenting.

Put together, we can describe EDT as an entrepreneurship education approach for treating user-centered problems as entrepreneurial opportunities within an iterative process of solution creation and exploitation.

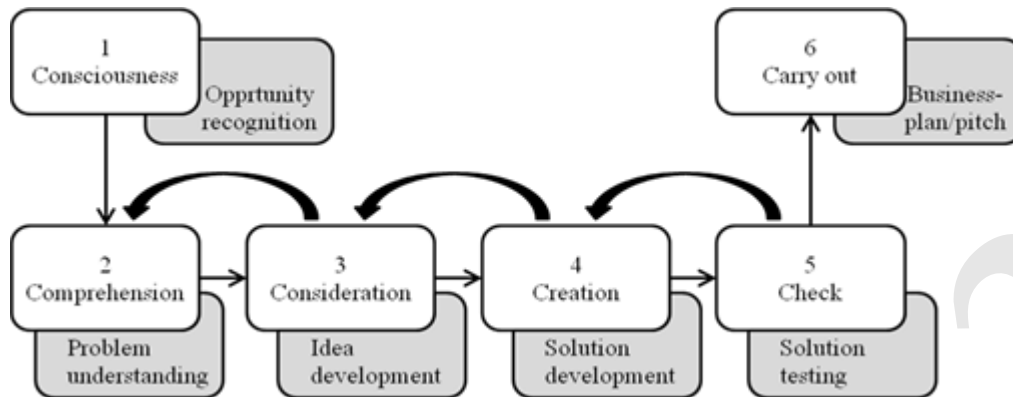


Figure 9: Process of Entrepreneurial Design Thinking®

5.2. An Entrepreneurship Education Approach

The purpose of entrepreneurship education is to impart entrepreneurship knowledge in students' minds. In order to successfully teach entrepreneurship it is necessary for students to actually experience entrepreneurship (Young, 1997). The concepts of experimenting and experience-based learning are important for entrepreneurship education, as they enhance learning success (Kourilsky & Carlson, 1997). Therefore educators should try to account for experimenting and experience-based learning by using EDT as a framework for entrepreneurship courses.

The students work on different complex projects, whereas the intensity and the continuity increase over the course of time. First of all introductory projects are elaborated for teambuilding and becoming familiar to the methods. Afterwards the groups work on enhanced projects, whereas the teams rotate and thereby every group frequently gets new team members. At last every team works on a great final project that deals with the solution of a real problem that the team observed before and prepares a possible foundation of a business model. The activities of the students are aiming to an entrepreneurial execution of creative problem solutions. Thus, the participants get an education in creative teamwork processes as well as in entrepreneurship subjects. The latter subjects include a variety of topics for example business models, marketing and distribution or investment and financing. On the basis of this knowledge the participants are enabled to independently evaluate their ideas and to write a business plan. Thereby the members get entrepreneurial competences, which are not only important for their self-employment but also for an employment (intrapreneurship).

During the course, the students should be accompanied by several advisers, who do not actively influence the process but give feedback and suggestions to indirectly instruct the participants. Ideally multiple advisers with different specializations are available to holistically accompany the students.

6. Implications for Entrepreneurship Education Research and Practice

EDT, as it was conceptually argued, is a very helpful methodology especially for entrepreneurship education. It may supplement the entrepreneurship research agenda on the levels of diverse teams, user-centricity, opportunities and processing. Further research needs to discuss these potentials on a broader empirical basis as well as in other contexts, like corporate or social entrepreneurship. Especially, our hypothesis is that EDT will increase the likelihood of successful start-ups from university origins. This also needs to be proved, empirically with respective rigor.

EDT definitely offers an alternative scenario in order to impart entrepreneurial competences. It is the atmosphere and using building bricks and plasticize which makes this learning process playful. Also, it includes the possibility of self-evaluation of the measures provided during the EDT workshops because it is dynamic and flexible in itself.

Sound teams are the basis for successful start-ups. Most often, potential team members use well established contacts in order to build a team accrue from stable friendship-based relationships (Francis & Sandberg, 2000) or family connections. Without questioning the positive effects of trust-based close relationships, we like to recommend a more open perspective also here because we see a huge gap between what is used as contacts and what could be used. EDT not only opens-up the perspective for other disciplines and related problem-solving perspectives but also for potentially completely new team members.

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4th International Conference on New Horizons in Education

Power law distribution of student's achievement in stem: indication of ability or failure

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Abstract

Analyses of results on recent state matura examination in Croatia suggest power law distribution in physics similar to corresponding examination on Advancing physics in G. Britain. Same distribution has been observed in some other STEM subjects (e.g. informatics and mathematics) in Croatian matura examination. Interpreting results through the lens of Gauss distribution (traditionally prevailing in educational community) lead to wrong conclusions. Grounded on heuristic argument that nature of school knowledge differ, we justify choice of power law distribution as more appropriate for analyzing STEM subjects, not questioning suitability of Gauss distribution for analyzing achievement in humanities and arts.

Keywords: state examination, distribution, power law, nature of knowledge

1. Introduction

State matura examination in Croatia begun in 2010. Students successfully passed the 4nd class of gymnasium or vocational schools (in average at age of 19) are eligible to undergo matura examination. The purpose of matura is evaluation of student's school achievements. In spite of, according critics (Bezinović, 2010), numerous drawbacks (inclination to facts testing, does not evaluate application of knowledge in everyday life, does not examine critical thinking, does not assess ability for hypotheses making, reduces teaching on preparation for exams instead of developing student's high cognitive competences and creativity), matura, from its inclusion, also serves as university entrance exam. It was questioned matura exam as appropriate instrument of university success prediction. Some universities departments (arts, medicine, law, physical) add some domain specific entrance examination. It is expected that matura in future be shaped more as certification of high student's school achievements.

In the shadow of controversies concerning the purpose of matura state examination, which attract public attention, we accept challenge (Bezinović, 2010) of discussion on metric characteristics of exam tests. While Bezinović (2010) blames absence of predefined (expected) metric characteristics in exam preparation, we claim that authors of matura exam implicitly expected Gauss distribution of results. It is obvious if one see post tests analyses, made by same educational agency responsible for matura exam realization. Our position is that Gauss distribution is appropriate for analyzing achievement in humanities and arts, but leads to wrong conclusions applied on exam data concerning STEM subjects (especially physics and informatics). We propose power law distribution (Newman, 2006) as superb to Gauss in analyzing results in physics and informatics. Similar distribution of data on A-level physics examination (Advancing physics) in G. Britain is described (A-level results, 2012). Finally, we pose heuristic argument that difference in empirical data for STEM versus humanities

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school subjects on matura examination may stem from somewhat different nature of corresponding school knowledge.

2. High school curriculum and knowledge assessment

High school curriculum in Croatia is composed of mainly two parts: STEM (mathematics, informatics, physics, chemistry, biology and technology in some vocational schools) and humanities (mother languages, classic and foreign languages, history, arts, philosophy and religious) subjects. Some social (sociology, economy, geography) subjects, physical training and promoting citizenship and health form rest of curriculum but with minor impact on student's school success. Obligatory subjects on matura examination are mother language (Croatian at the most), mathematics and one foreign language (English at the most). Students can choose elective subjects too.

Exam questions are based on the learning outcomes. Besides multiple choice questions, some tasks are open ended or in essay form to access high cognitive competences and creativity.

3. Results of 2012 Croatia matura exam in physics, informatics and languages

3.1. Croatian and English language as typical instances of humanities subjects

Results of examination on Croatian language (in gymnasium and vocational schools) are shown in Fig.1.

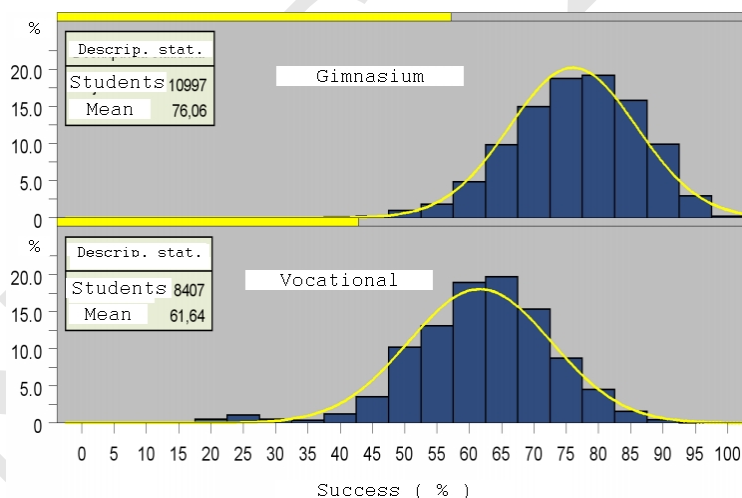


Fig.1. Distribution of percent success on Croatian language

Similar results, shown in Fig.2, are obtained for foreign language (at the most English).

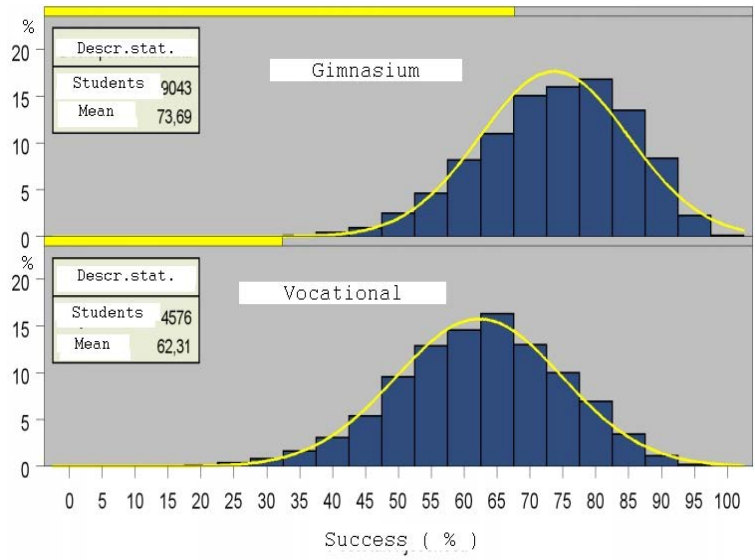


Fig.2. Distribution of percent success on English language

3.2. Physics and informatics as representatives of STEM subjects

Results of examination on physics (in gymnasium and vocational schools) are shown in Fig.3.

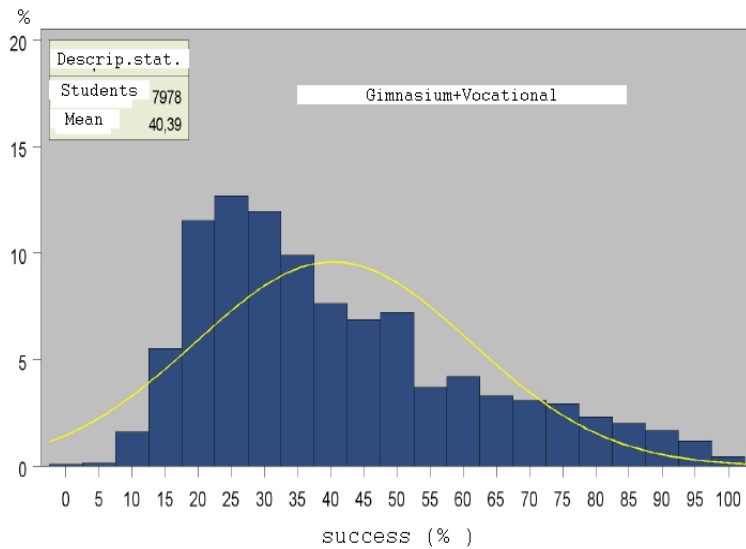


Fig.3. Distribution of percent success on physics

Results of examination on informatics (in gymnasium and vocational schools) are shown in Fig.4.

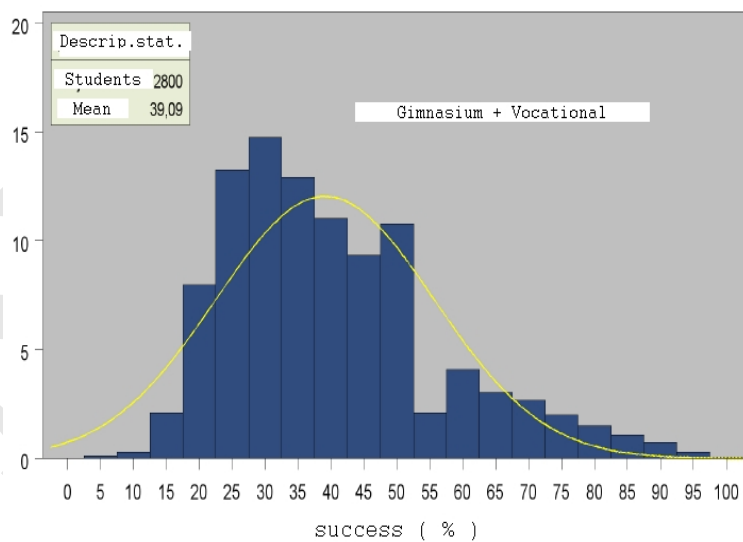


Fig.4. Distribution of percent success on informatics

On each graph on horizontal axe is shown percentage of successfully solved tasks, while on vertical axe is shown percentage of students who had corresponding success. E.g. closer examination of upper figure reveals that 15 % of students (i.e. 420) successfully solved 30 % tasks (multiple choice questions and open ended tasks) which qualified them for mark two because examination agency considered success of 25 % as lower limit to pass exam on informatics.

4. Analyses of results

4.1. Results on humanities exams are well approximated with Gauss distribution

Results of exams on four school subjects (Ispiti državne mature 2011/2012, 2012) shown on previous graphs has been analysed by state examination agency responsible for matura exam realisation. We agree with treating data on languages exams as belonging to Gauss distribution. It is obvious from the graphs (Fig.1 and Fig.2) that exam data for languages are very well approximated with bell-shaped Gauss distribution. Majority of students (60 %) is grouped in middle bin with mark good (3). The rest of them are distributed in class with mark enough (2) or with mark very good (4) or excellent (5). A certain degree of skewness to the right show an over dominance of reproduction type questions which is characteristic of school subjects inclined to transfer of cultural heritage. Also, the mean on Croatian language for gymnasium population is greater (76 %) than for vocational schools (62 %), what is expected when knowing higher primary school grades of students entering gymnasium.

4.2. Results on STEM (physics and informatics) are to be approximate with power law distribution

Key point of our work is that we disagree with treating exam data on physics and informatics as appropriate to be described by Gauss distribution. Visual inspection of graphs (Fig.3. and Fig.4.) is enough to reject attempt of psychometric experts to push empirical data under the bell of theoretically imposed Gauss distribution (green curve on figures). Quantitative analyses is not necessary to accept need for another distribution, better approximating data. We propose power law distribution. Quantitative proving of appropriateness of that distribution and advantages over possible choice of some exponential distribution will not be undertaken in this work (Clauset, 2009). For the first approximation it will suffice visual inspection.

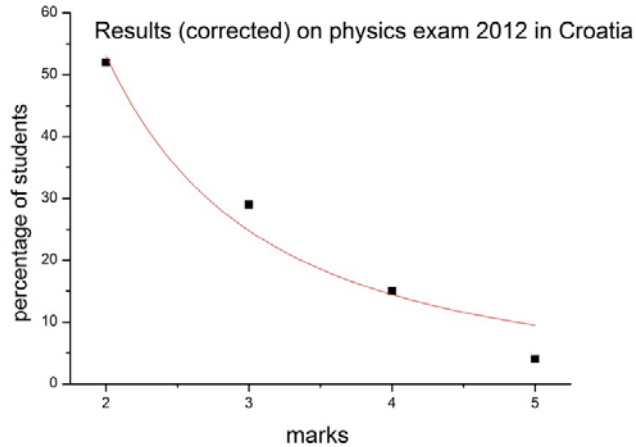


Fig.5. Power law distribution of percent success on physics

Here we have to emphasize that values on the graph are not crude data from physics exam in Croatia 2012. We made one important correction. Mark one (1) is missing on upper graph. Really, about 20 % students on that exam did not pass exam because they earned less than lower limit of 22 % successfully solved questions. We claim that these students had not been allowed to approach the matura exam. They have positively finished 4th class as result of constantly lowering of threshold in Croatian school system. Result on matura exam clearly indicates that they had not acquired competences in course of four year learning of physics. Same conclusion is concerning informatics result too.

5. Comparison with results of advancing physics exam in G. Britain

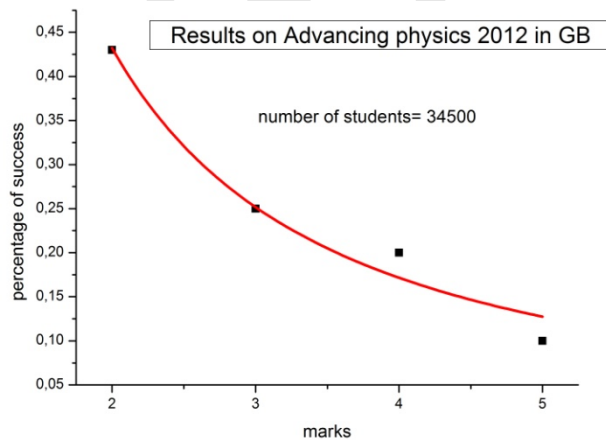


Fig.5. Power law distribution of percent success on physics

It is very suggestive to compare results of Croatian matura exam on physics with similar state examination on Advancing physics curriculum in Great Britain. That curriculum has similar coverage of themes, use of

mathematics and cognitive load expectation (problem solving) but is realised more compactly, in two year. To be consistent with marking schemas as used in Croatia and other continental Europe we transformed British marking schema so that level of success A* is mapped to mark excellent (5), level A to mark very well (4), level B to mark good (3), levels C,D and E are mapped to single mark enough (2). Several percents of students which had not passed exam are neglected, being inside statistical error. It is obvious good fitting of data to power law distribution whose mathematical expression has form:

$$y = x^a$$

a is parameter $\approx -2,5$

Empirical data partially depart from theoretical distribution in range of level A, where has more than expected students. We guess that reason is very competitive British high school system and more than expected fraction of, STEM inclined students, capable to study science and engineering faculties.

6. Does different nature of school subject's knowledge cause different exam data?

What's matter interpreting results of all school subjects as susceptible to Gauss distribution? First obvious impression is success in humanities and failure in STEM subjects. School authority in Croatia, parents and media proclaimed that schools made good jobs in humanities subjects while teacher of STEM subjects did not. We disagree with this interpretation insisting that results of STEM subjects are not to be expected to behave according to law of Gauss distribution, but, instead, to power law distribution.

Power law distribution is appropriate when describing phenomena in which huge events happen to occur extremely rare, smaller events occur often but very small events occur quite often. Examples of such events are numerous:

- distribution of earthquakes (huge earthquakes are extremely rare, small are very often)
- number of injuries in wars (very rare there are a lot of injuries in war, usually there are only several),
- number of cities with certain population (there is little cities with population like New York, but a lot of cities with small population),
- number of islands with area larger than certain (little islands with great area, almost infinity islands with very small area)
- etc

Applied on school knowledge based on mathematical reasoning (STEM subjects), heuristics is next:

- not too much students are ready to face unknown situation and solve problems using mathematical reasoning, majority of them are conform dealing with only familiar tasks. If so, rare students can earn excellent mark on exam, and the most of them are satisfied with just passing exam. Fast changing nature of informatics and sciences, process of constant construction and deconstruction of meaning fare from

equilibrium is not acceptable to majority, satisfied only with using new technology. But for development and solving complex problems our civilization is faced, involvement of talented students which outperformed on exams is crucial. Science has nature of constant development and improvement, so keen to talented minority ready for experimenting. Schools and teachers providing power law distribution of student's success on STEM subjects work good job.

What about majority passing good on humanities exams?

- they are of utmost importance, because only well educated majority of citizenship can be guaranty of preserving values and cultural heritage of our civilisation. Creativity is key word in education (Robinson, 2006), but one can not expected that the biggest part of recent cultural artefacts will resist the judgement of future. The Bible, Mozart or Picasso have to be transfered to next generation. One do not expect better music than composed by Mozart, maybe only different.

To conclude, school education is balance between preserving and change, we need all values, but have to be aware of them when measure educational outcomes.

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Pre-service science teachers' concerns about chemistry laboratory (case of Muğla University-Turkey)

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Abstract

The purpose of the present study is to investigate whether there will be some changes in pre-service teachers' concerns about chemistry laboratories as a result of the activities to be performed within the framework of the course of General Chemistry Laboratory I. The present study was carried out on 101 first-year students attending the department of science teacher education within the program of elementary education at the Faculty of Education of Muğla Sıtkı Koçman University in the fall term of 2011-2012 academic year and these students were taking the course of General Chemistry Laboratory I. Within the study, "The Scale of Concern about Chemistry Laboratories" developed by Bowen and translated into Turkish by Azizioğlu and Uzuntiryaki was used to collect data (Azizioğlu and Uzuntiryaki, 2006; Bowen, 1999). The data collected from the administration of the scale as pre-test and post-test revealed that the activities done in the laboratory resulted in reductions in concern level of the pre-service teachers.

Keywords: Chemistry laboratory, scale of concern, science, pre-service teacher, general chemistry

1. INTRODUCTION

One of the most important features of natural sciences differentiating it from other sciences is their focus on experiment and observation. The attitudes and behaviours of individuals learning by experimenting, observing, researching and discussing against events will be different from those educated through classical methods (Taşkın Ekici et al., 2002). Laboratory settings constitute the main element of the activities performed by students to learn scientific issues, develop their scientific research conducting skills and their perception of science, and generate various learning environments. Moreover, these are settings which are suitable for students to conduct cooperative works to research scientific issues (Hofstein and Lunetta, 2003). In laboratory works, students are encouraged to participate in scientific activities ranging from learning through experience and discovery, asking questions, suggesting solutions, making predictions, organizing the data to explaining through examples. Such activities help students gain some insights into how actual scientists carry out their works. Based on this fact, laboratory works can be used to enhance the attitudes towards science, scientific attitudes, scientific research methods, conceptual understanding and technical skills (Hofstein and Lunetta, 1982; Chiappetta and Koballa, 2002:150). Many science instructors point out the importance and significant affects of laboratory works in terms of enhancing students' science achievement and attitudes towards science (Hofstein et al., 2005; Renner, Abraham and Birnie, 1985; Renner, 1986; Roth, 1994; Shymansky and Kyle, 1988; Okebukola, 1986). Aydoğdu (1991) conducted a study entitled "Importance of Laboratory in Chemistry Teaching, Laboratory Techniques and

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Applications". Demirci (1993) stated that the greatest achievement in science education can be obtained through experimental method based learning.

On the other hand, it is known that there are some factors directly affecting laboratory applications of students. Though it is known that there are cognitive, affective and experimental dimensions of learning, the research shows that learning is restricted to its cognitive dimension in general (Driscoll, 1994; Durit, 1991; Mintzes, Wandersse and Novak, 1998). However, it should be noted that besides cognitive features affecting learning, social and affective features, positive and negative attitudes, students' needs, interest, expectations and orientations should be taken into consideration. Among the negative feelings, concern has an important place (Laukenmaan et al., 2003). This is a feeling adversely affecting science learning, it can be defined as a kind of fear of science. Czerniak and Chiarelott (1984) proved that high level of concern about science results in low science achievement and draw the attention to concern about science as one of the factors affecting science achievement. Concern about chemistry is defined in different ways by many different researchers. Breslow (1993) defined it as a fear of chemical substances. Eddy (2000) analyzed the concern about chemistry under three headings; concern about learning chemistry, concern about evaluation of chemistry and concern about chemical substances.

Anılan, Görgülü and Balbağ (2009) investigated whether there are significant correlations between students' concern about chemistry laboratory and gender, field of study, general academic achievement and opinions about the course of chemistry. The study was conducted with the participation of 94 students from the departments of Elementary School Mathematics Teaching and Science Teaching. All of the students were taking chemistry course. It was found that the pre-service teachers were experiencing some conflicts in relation to use of laboratory equipments and chemical substances, they felt comfortable while working with their peers, they did not have any concern about collecting data and use of laboratory time. For some items, significant differences based on gender were found between the pre-service teachers' concerns about chemistry laboratory and these differences favour female students. For some items, significant differences based on field of study were found in the opinions of students about their concerns about chemistry laboratory and these differences favour the department of mathematics teaching. For some items, significant differences based on whether the students attend day time or night time classes were found in relation to the students' concerns about chemistry laboratories and these differences favour night-time students.

In the literature, the studies mostly focus on the determination of students' attitudes towards laboratory applications or the problems experienced in laboratory applications (Ayas et al., 2002; Cronholm et al., 2000; Nuhoğlu et al., 2004, Yeşilyurt, 2006). As there is a lack of research looking at students' concerns about laboratories and applications in chemistry laboratories can be influential on students' attitudes towards laboratories and their achievement and their concerns, this study is believed to be a contribution to the existing literature. In this respect, the purpose of the present study is to investigate whether there will be any changes in the students' level of concern about chemistry laboratory as a result of the applications to be performed within the framework of the course of General Chemistry Laboratory I.

For this purpose, responses to the following sub-problems were sought:

1. What are the pre-test and post-test percentage distributions of the students' opinions elicited through the administration of "The Scale of Concern about Chemistry Laboratories"?
2. Is there a statistically significant difference between the "The Scale of Concern about Chemistry Laboratories" pre-test and post-test scores?

2. METHOD

The present study employing experimental method was conducted on 101 first-year students attending the department of science teacher education within the program of elementary education at the Faculty of Education of Muğla Sıtkı Koçman University in the fall term of 2011-2012 academic year and these students were taking the course of General Chemistry Laboratory I.

2.1. Data collection instruments

As data collection instruments, "The Scale of Concern about Chemistry Laboratories" developed by Bowen and translated into Turkish by Azizioğlu and Uzuntiryaki was used (Azizioğlu ve Uzuntiryaki, 2006; Bowen, 1999). At the beginning of the term, before starting the course of General Chemistry Laboratory I, "The Scale of Concern about Chemistry Laboratories" was administered as a pre-test. Throughout the term, the experiments required within the content of the course were performed and at the end of the term, "The Scale of Concern about Chemistry Laboratories" was administered once more as a post-test. The scale includes 20 statements designed in the form of 5-point Likert type. The participants responded to each item on a scale ranging from "Strongly Agree", "Agree", "Undecided", "Disagree" to "Strongly Disagree". In the scale, there are 15 items supporting concerns (negative) and 5 items not supporting concerns (positive). The scoring of the positive items is as follows: Strongly Agree=5, Agree=4, Undecided=3, Disagree=2 and Strongly Disagree=1 and it is in the reverse order for negative items. The Cronbach-alpha reliability coefficient of the scale was found to be .85 for pre-test and .92 for post-test.

2.2. Data analysis

In the analysis of the data, SPSS 14 program package was employed. Pre-test and post-test percentage distributions of the opinions elicited with the administration of "The Scale of Concern about Chemistry Laboratories" were analyzed through descriptive statistics. Dependent samples t-test was conducted to investigate whether there is a statistically significant difference between the pre-test scores and post-test scores.

3. FINDINGS

3.1. Pre-test and post-test percentage distributions of the opinions elicited through "The Scale of Concern about Chemistry Laboratories"

The pre-test and post-test percentage distributions of the pre-service teachers' opinions elicited through "The Scale of Concern about Chemistry Laboratories" were determined by using descriptive statistics and the results are presented in Table 1.

The options of "Strongly Agree" and "Agree" in the scale were considered to be Positive (Agree) and the options of "Strongly Disagree" and "Disagree" were considered to be negative (Disagree) and the option of "Undecided" was considered to be undecided. It is seen in Table 1 that in relation to negative items, that is, the items supporting the concerns (1, 3, 4, 5, 6, 7, 8, 10, 12, 13, 14, 15, 16, 17, 19), the most popular option adopted by the pre-service teachers is "disagree"; on the other hand, in relation to positive items; that is, items not supporting the concerns (2, 9, 11, 18, 20) again the most popular option is "agree". The percentages of post-test administered to the pre-service teachers both agreeing and disagreeing after the completion of the laboratory

experiments performed within the framework of the course of General Chemistry Laboratory I greatly increased when compared to the percentages obtained as a result of the pre-test. The explanation of this finding for each item is given below:

- Item:** “While using chemical substances in the laboratory, I feel restless” is disagreed by 45% of the pre-service teachers according to pre-test results; yet, the same item is disagreed by 75% of the participants.

Table 1. Pre-test and post-test percentage distributions of the students' opinions elicited through “The Scale of Concern about Chemistry Laboratories”

Items	Pre-test (%)			Post-test (%)		
	Positive(Agree)	Undecided	Negative(Disagree)	Positive(Agree)	Undecided	Negative(Disagree)
1	34	18	49	23	3	75
2*	58	21	22	83	6	12
3	42	23	36	17	14	70
4	14	8	79	18	8	75
5	27	22	52	16	12	73
6	23	20	57	18	11	72
7	20	14	67	10	12	79
8	31	8	52	15	8	78
9*	75	14	12	77	8	16
10	18	22	61	15	18	68
11*	55	20	26	70	16	15
12	25	23	53	10	9	82
13	35	22	44	11	9	81
14	10	18	73	16	10	75
15	26	28	47	20	12	69
16	21	18	62	6	10	85
17	26	21	54	15	9	77
18*	43	28	30	81	9	11
19	10	13	78	13	9	79
20*	46	31	24	70	14	17

Negative items: 1=Strongly agree 2=Agree 3=Undecided 4=Disagree 5=Strongly disagree

***Positive items:** 1= Strongly disagree 2=Disagree 3=Undecided 4=Agree 5=Strongly agree

- 2. Item:** “I feel at ease while using the equipments in the chemistry laboratory” is agreed by 58% of the pre-service teachers according to pre-test results; yet, the same item is agreed by 83% of the participants.
- 3. Item:** “While getting ready for the laboratory, I feel worried about not being able to record the data to be obtained” is agreed by 42% and disagreed by 29% of the pre-service teachers according to pre-test results; yet, the same item is agreed by 17% and disagreed by 70% of the participants.
- 4. Item:** “I feel tense while working with other students in the chemistry laboratory” is disagreed by 79% of the pre-service teachers according to pre-test results; yet, the same item is disagreed by 75% of the participants.
- 5. Item:** “I feel worried about whether there is enough time to complete the work in the laboratory” is disagreed by 52% of the pre-service teachers according to pre-test results; yet, the same item is disagreed by 73% of the participants.
- 6. Item:** “While getting ready for the chemistry laboratory, I feel worried about the chemical substances I will use” is disagreed by 57% of the pre-service teachers according to pre-test results; yet, the same item is disagreed by 72% of the participants.
- 7. Item:** “While working in the chemistry laboratory, I feel tense while performing the tasks required by the laboratory” is disagreed by 68% of the pre-service teachers according to pre-test results; yet, the same item is disagreed by 79% of the participants.
- 8. Item:** “I feel tense while recording the data in the laboratory” is disagreed by 52% of the pre-service teachers according to pre-test results; yet, the same item is disagreed by 78% of the participants.
- 9. Item:** “I feel at ease while working with other students in the Laboratory” is agreed by 75% of the pre-service teachers according to pre-test results; yet, the same item is agreed by 77% of the participants.
- 10. Item:** “While working in the laboratory, I feel worried about how long the experiment will last” is disagreed by 61% of the pre-service teachers according to pre-test results; yet, the same item is disagreed by 68% of the participants.
- 11. Item:** “I feel comfortable in the presence of chemical substances around in the laboratory” is agreed by 55% of the pre-service teachers according to pre-test results; yet, the same item is disagreed by 70% of the participants.
- 12. Item:** “I feel tense while conducting a laboratory work” is disagreed by 53% of the pre-service teachers according to pre-test results; yet, the same item is disagreed by 82% of the participants.
- 13. Item:** “While working in the laboratory, recording the data I will need makes me tense” is disagreed by 44% of the pre-service teachers according to pre-test results; yet, the same item is disagreed by 81% of the participants.
- 14. Item:** “I feel worried while working in the laboratory with other students” is disagreed by 58% of the pre-service teachers according to pre-test results; yet, the same item is disagreed by 75% of the participants.
- 15. Item:** “While I am preparing for the laboratory, I feel worried about the time given to conduct the experiment” is disagreed by 47% of the pre-service teachers according to pre-test results; yet, the same item is disagreed by 69% of the participants.

16. Item: “While I am working in the laboratory, I feel tense as I am close to chemical substances” is disagreed by 62% of the pre-service teachers according to pre-test results; yet, the same item is disagreed by 85% of the participants.

17. Item: “I feel worried while using laboratory equipments” is disagreed by 54% of the pre-service teachers according to pre-test results; yet, the same item is disagreed by 77% of the participants.

18. Item: “While working in the chemistry laboratory, I feel relaxed about recording the data required” is agreed by 43% of the pre-service teachers according to pre-test results; yet, the same item is agreed by 81% of the participants.

19. Item: “While preparing for the chemistry laboratory, I feel worried about the fact that I will work with other students” is disagreed by 78% of the pre-service teachers according to pre-test results; yet, the same item is disagreed by 79% of the participants.

20. Item: “I feel relaxed about the time given to complete the laboratory” is agreed by 46% of the pre-service teachers according to pre-test results; yet, the same item is agreed by 70% of the participants.

3.2. Findings concerning the pre-service teachers’ pre-test and post-test scores from “The Scale of Concern about Chemistry Laboratory”

Independent samples t-test was employed to investigate whether there is a significant difference between the pre-service teachers’ pre-test scores and post-test scores and the results are presented in Table 2.

Table 2. t-test results concerning the pre-service teachers’ pre-test and post-test scores of the Scale of Concern about Chemistry Laboratory

Tests	N	\bar{X}	S	sd	t	p
Pre-test	101	68.85	11.87	100	-3.83	.000
Post-test	101	75.31	11.83			

In table 2, it is seen that there is a statistically significant difference between the pre-service teachers’ pre-test and post-test scores [$t_{(100)} = - 3.83$, $p < .05$]. Before conducting the experiments within the framework of the present study, the mean pre-test score was found to be $\bar{X} = 68.85$, yet, after conducting the experiments in the chemistry laboratory, the mean post-test score of the students was found to be $\bar{X} = 75.31$. This shows that the

experiments conducted in the laboratory within the course of General Chemistry Laboratory I resulted in reduction in the concern level of the students.

4. DISCUSSION

In the present study looking at whether there will be reduction in the pre-service teachers' concern level about the chemistry laboratory as a result of the experiments to be conducted within the course of General Chemistry Laboratory I, it was found that the majority of the pre-service teachers responded to the items supporting concern; that is, negative items by disagreeing and the majority of the pre-service teachers responded to the items not supporting concern; that is, positive items by agreeing. Moreover, the percentages of the pre-service teachers agreeing or disagreeing increased significantly after they completed the experiments during the term. Each item is discussed individually below:

The post-test percentage of the pre-service teachers disagreeing with the first item "While using chemical substances in the laboratory, I feel restless" is higher than their pre-test percentage. The reason for the increase in the post-test percentage can be the increase in the percentage of the pre-service teachers who do not feel restless while using chemical substances.

The post-test percentage of the pre-service teachers agreeing with the second item "I feel at ease while using the equipments in the chemistry laboratory" is higher than their pre-test percentage. The increase seen in the post-test percentage after the experiments were completed may indicate that the pre-service teachers' ease of using laboratory equipments has increased as a result of conducting the experiments in the laboratory.

While the pre-test percentage of the pre-service teachers agreeing with the third item "While getting ready for the laboratory, I feel worried about not being able to record the data to be obtained" decreased in the post-test (as the item is negative, the decrease in the percentage of those agreeing indicates that the concern has decreased; the pre-test percentage of the pre-service teachers disagreeing increased. The increase seen in the post-test percentage of the pre-service teachers disagreeing with this item indicates that the percentage of those not worrying about recording the data after the experiments within the study were completed increased.

Though little, the percentage of the pre-service teachers responding to the fourth item "I feel tense while working with other students in the chemistry laboratory" by disagreeing decreased. This may be because of the affective characteristics coming to the forth as a result of working in groups in the laboratory.

The post-test percentage of the pre-service teachers disagreeing with the fifth item "I feel worried about whether there is enough time to complete the work in the laboratory" is higher than their pre-test percentage. The reason behind the increase seen after the experiments were completed in post-test score indicates that the pre-service teachers do not worry any more about the inadequacy of the time to complete the tasks in the laboratory.

It is seen that there is an increase in the percentage of the pre-service teachers disagreeing with the sixth item "While getting ready for the chemistry laboratory, I feel worried about the chemical substances I will use". This indicates that the concern level of the pre-service teachers about using chemical substances in the laboratory decreased after they completed the laboratory works during the study and this finding is in compliance with the finding obtained for the first item "While using chemical substances in the laboratory, I feel restless" and both of the items clearly show that the laboratory works performed during the study resulted decrease in the concern level of pre-service teachers about using chemical substances.

It is seen that there is an increase in the percentage of the pre-service teachers disagreeing with the seventh item "While working in the chemistry laboratory, I feel tense while performing the tasks required by the

laboratory” This increase seen in the post-test percentage may be because after completing the laboratory works performed during the present study led the participants to think that doing laboratory works do not make them tense.

It is seen that there is an increase in the percentage of the pre-service teachers disagreeing with the eighth item “I feel tense while recording the data in the laboratory”. The laboratory works performed during the present study may have resulted in a decrease in the level of concern felt while recording the data.

It is seen that there is an increase in the percentage of the pre-service teachers agreeing with the ninth item “I feel at ease while working with other students in the Laboratory”. Though little, the increase seen in the post-test percentage of the pre-service teachers indicates that the laboratory works performed during the study resulted in heightened sense of comfort in working with their peers.

It is seen that there is an increase in the percentage of the pre-service teachers disagreeing with the tenth item “While working in the laboratory, I feel worried about how long the experiment will last” This increase observed following the completion of the laboratory works performed during the present study may indicate that through practice, the self-confidence of the students increased.

It is seen that there is an increase in the percentage of the pre-service teachers disagreeing with the eleventh item “I feel comfortable in the presence of chemical substances around in the laboratory” and this indicates that as a result of the laboratory works completed during the present study, the pre-service teachers started to feel comfortable with chemical substances in the laboratory. Moreover, this finding is in good compliance with the finding obtained for the sixth item “While getting ready for the chemistry laboratory, I feel worried about the chemical substances I will use”.

It is seen that there is an increase in the percentage of the pre-service teachers disagreeing with the twelfth item “I feel tense while conducting a laboratory work”. This shows that the experiences gained from the laboratory works completed during the present study led the pre-service teacher to feel less tense about conducting laboratory works. This finding also supports the finding obtained for the seventh item “While working in the chemistry laboratory, I feel tense while performing the tasks required by the laboratory”. The parallelism seen between the findings obtained for different items of the scale indicates that the participants carefully read the questionnaire items.

It is seen that there is an increase in the percentage of the pre-service teachers disagreeing with the thirteenth item “While working in the laboratory, recording the data I will need makes me tense”. And this shows that after the completing the laboratory works during the present study, the pre-service teachers’ self-efficacy perception in terms of data recording increased. Moreover, this finding supports the finding obtained for the eighth item “I feel tense while recording the data in the laboratory”.

It is seen that there is an increase in the percentage of the pre-service teachers disagreeing with the fourteenth item “I feel worried while working in the laboratory with other students”. And this may indicate that as a result of the group work experiences gained during the completion of the laboratory works in the present study, the pre-service teachers started to feel more comfortable with working with other students. Moreover, this finding is supported by the findings obtained for the fourth and ninth items. And here affective characteristics of the students are more influential, the difference found between the pre-test and post-test is small.

It is seen that there is an increase in the percentage of the pre-service teachers disagreeing with the fifteenth item “While I am preparing for the laboratory, I feel worried about the time given to conduct the experiment”. As a result of the experiments conducted during the term, the pre-service teachers may have understood how much

time is needed for a given laboratory task. This findings is also supported by the findings obtained for item 5 “I feel worried about whether there is enough time to complete the work in the laboratory” and item 10 ““While working in the laboratory, I feel worried about how long the experiment will last””.

It is seen that there is an increase in the percentage of the pre-service teachers disagreeing with the sixteenth item ““While I am working in the laboratory, I feel tense as I am close to chemical substances””. This increase seen in the post-test percentage shows that after the completion of the laboratory experiments, the pre-service teachers started to feel more comfortable with the presence of chemical substances close to themselves. This finding is supported by the finding obtained with the eleventh item “I feel comfortable in the presence of chemical substances around in the laboratory”

It is seen that there is an increase in the percentage of the pre-service teachers disagreeing with the seventeenth item “I feel worried while using laboratory equipments””. This may be because of the fact that after completing laboratory works during the term, the pre-service teachers may have developed their experimental skills, which resulted in an increase in the level of comfort felt with the equipments. Moreover, this finding is supported by the finding obtained for the second item ““I feel at ease while using the equipments in the chemistry laboratory””

It is seen that there is an increase in the percentage of the pre-service teachers agreeing with the eighteenth item “While working in the chemistry laboratory, I feel relaxed about recording the data required””. This increase observed after the completion of the laboratory works during the term indicates that the pre-service teachers’ perception of self-efficacy for recording the data increased. This finding is supported by the finding of eight item “I feel tense while recording the data in the laboratory” and the finding obtained for the thirteenth item “I feel tense while recording the data in the laboratory””.

It is seen that there is a small increase in the percentage of the pre-service teachers disagreeing with the nineteenth item “While preparing for the chemistry laboratory, I feel worried about the fact that I will work with other students””. The reason for this increase to be small is that pre-service teachers’ affective characteristics are of great importance for the responses given to this item. While conducting the experiments within the laboratory within the term, the pre-service teachers found some opportunities to work with their peers and as a result of these cooperative working experiences, the pre-service teachers may have started to feel more comfortable about working with their peers. This finding is supported by the findings obtained for the fourth item “I feel tense while working with other students in the chemistry laboratory” and for the ninth item ““I feel at ease while working with other students in the Laboratory””.

It is seen that there is an increase in the percentage of the pre-service teachers agreeing with the twentieth item “I feel relaxed about the time given to complete the laboratory””. This increase observed in the post-test may be because the pre-service teachers may have developed their time-management strategies and may have got rid of their concerns about the time given for the experiment as a result of the laboratory works performed during the term. This finding is supported by the findings of item 5 “I feel worried about whether there is enough time to complete the work in the laboratory”, item 10 “While working in the laboratory, I feel worried about how long the experiment will last” and item 15 “While I am preparing for the laboratory, I feel worried about the time given to conduct the experiment””.

A significant difference was found between the pre-service teachers’ pre-test scores and post-test scores obtained from the scale of concern because the mean score obtained for the post-test is higher than pre-test mean score. The pre-service teachers’ good level of preparedness and the strategies and methods used by the instructor may have affected this result. The research shows that laboratory applications may be influential on reducing the concern of students. Erötken (2010) conducted a study called “Evaluation of the Effects of Chemistry Laboratory

Applications on Student Concern” and when they compared the pre-test and post-test results, they found that there was a reduction in the concern level of the students as a result of the applications performed during the study. Toprak and Çelikler (2011) conducted a study called “The Effects of the Use of 3E and 5E Learning Cycles in the General Chemistry Laboratory on Student’s Level of Concern” and they compared the pre-test and post-test results and they found that there is a considerable reduction in the students’ level of concern about the General Chemistry Laboratory. Anılan, Görgülü and Balbağ (2009) revealed that the pre-service teachers feel comfortable while working with other pre-service teachers, they do not feel concerned about collecting data and they do not feel worried about the use of time.

5. RESULTS AND SUGGESTIONS

The findings of the present study can be summarized as follows:

- The majority of the teachers selected the option of “disagree” for negative items and the option of “agree” for positive items.
- The experiments conducted within the framework of the course of General Chemistry Laboratory I resulted in reduction in Science pre-service teachers’ concerns about the chemistry laboratory.

It is emphasized that when pre-service teachers recognize that experimental process is an integral part of natural sciences and get informed about the functioning of this process, the level of concern they can experience may drop.

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Pricing Decisions in Educational Institutions: An Activity Based Approach

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Abstract

The number of private high schools is significantly growing due to recent increase in the demand for private schools. Therefore, it has been crucial for the administration of private schools to be able to gain competitive advantage and to make strategic decisions including pricing decisions. Private schools have to determine appropriate annual fees in an intensely competitive environment in order to attract new students or not to lose current students. Many factors such as customer demand, attitudes of competing educational institutions, public image of the school, political environment, legal regulations, country's economic conditions and other factors are effective in pricing decisions. An educational institution determines the education fee using either market based or cost based approaches. In this study we will focus on cost-plus pricing approach. A private school may determine the fee by adding a sufficient profit margin on the cost of resources consumed to provide educational services in cost plus pricing approach. Therefore in this approach accurately calculating the cost of services is significantly important. Activity based costing (ABC) method is a new approach in allocating indirect costs to cost objects and determining the unit costs by producing the most accurate data needed by the administrators and as an alternative to traditional costing methods. In this study we will implement the activity based costing method in a private school and determine the annual fees using activity based approach. In the study, we provide application of strategic pricing decisions in an example of a Turkish private high school.

Keywords: School; Cost Accounting; Pricing; Activity based costing

1. Introduction

The intense competition in private education sector in Turkey forces private high schools to seek ways to provide high quality service with the lowest cost. The main goal of management is to increase to invest in resources in most efficient ways and to reduce the costs. School administrators and owners need to have more detailed and more correct cost information to manage the cost better. The allocation of the cost to services has a critical importance in decision making process of the administrators of schools. Important decisions such as resource allocations, investment decisions, adding or dropping new units, and finally pricing decisions are all based on cost of the services. In order to make right decisions and to achieve the strategic goals of the schools, schools administrations must use the modern techniques in cost allocation. It has been crucially significant for administrators of schools to reach the most accurate cost data in the most proper way. Activity based costing approach provides useful cost information for the administrators in their decisions.

In this study, we will provide some implications of activity based pricing for private school in Turkey. In this purpose first we will discuss about the costing and pricing concepts, then we implement the activity based costing

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method in a private school and finally we investigate how to determine the annual fees using activity based approach. In the study, we provide application of strategic pricing decisions in an example of a Turkish private high school.

2. Pricing Decisions

Pricing is one of the most powerful tools a manager can use to transform unprofitable customers into profitable ones (Atkinson, Kaplan, Matsumura & Young, 2012: 250). Pricing services provided by an educational institution is the process of determining the value of sales that the costumers are willing to pay. Price of services determines the amount of profits after setting the costs of services. Pricing in short run and long run may differ in some aspects. Long run pricing decisions is a strategic decision designed to build long-run relationships with customers based on stable and predictable prices. Long-run pricing can be set to satisfy the desired rate of return while the short run pricing is decided under the current conditions which most items are irrelevant in short run (Horngren, Datar & Rajan, 2012: 456-457).

In general, managers determine prices considering factors such as customers, market, rivals, costs, timing, legal and political factors, and image related issues (Hilton, Milton, & Selto, 2008: 533). These factors influencing the pricing decision are also affecting the private schools. Education fees may be affected by some factors such as the city where the school established, other private schools in the same region, general economic conditions, school image, expectations of the parents, service coverage, costs such as personnel costs, utility expenses, marketing expenses, depreciation costs of assets, financial costs, etc.

In a free market, the price is the main factor to determine the effects of competition. The price is also important in determining the amount of demand and profitability margins. Even if a school is owned by a person or a foundation, the organization must make a profit to survive. Businesses require a rate of return to meet the cost of the serviced provided. Under normal circumstances, executives determines highest price for a sufficient profit margin after the costs, but in a competitive environment they do not have that power in their hands.

Two basic approaches of pricing are the market based pricing and cost based pricing (Horngren, Datar & Rajan, 2012: 459-460). In the market based pricing, prices are determined on the customers' expectations and the competitors' reactions. Based on market based prices, managers must control the cost of services in order to achieve the target return on investment. Educational institutions require high amount of capital investments, so to recover these investment managers must adequately place the schools' position in the market and offer a reasonable price to compete with the similar institutions. In the cost based approach, first the organization accumulates cost of services and determines the cost to recoup the costs and to achieve the target return on investments.

In market based pricing the school first determines the target price (annual fee). Target annual fee is estimated price for the educational services that the potential customers (parents) are willing to pay. After determining the target fee the executives drive a target cost by subtracting target profit from the target fee. Target cost covers all costs including variable and fixed costs (Horngren, Datar & Rajan, 2012: 461-462). Target costing may help managers to reduce the costs of services. Target costing emphasizes on planning and design stage and encompassing the entire life of the product. In order to achieve target cost making the necessary cost improvements through value engineering methods is the most difficult part of this business process (Coskun, 2003).

In cost based pricing approach, also called cost-plus pricing, managers determine the prospective selling price by adding a markup component to the cost of services. Cost-plus pricing can be used in the markets where the institution can set the prices of the services (Atkinson, Kaplan, Matsumura & Young, 2012: 87). Managers do not have to use a rigid markup component it may vary depending on the behavior of rivals and customers (Horngren, Datar & Rajan, 2012: 467). Based cost in cost plus pricing approach may be full cost, cost of services, or only variable costs.

Activity based pricing is a method uses the cost assigned to services by using the activity based costing approach. Activity based pricing establishes base pricing options for the institution to provide customers for any special services they requested (Atkinson, Kaplan, Matsumura & Young, 2012: 250). In the following part we will explain the activity based costing to make the activity based pricing more understandable.

3. Activity Based Costing in Educational Institutions

Allocation of cost in service type businesses sometimes become more complicated than manufacturing or merchandising businesses. Since their output is not a physical one, service businesses more carefully define the cost objects and allocate cost in a proper way. Activity based costing (ABC) approach is a new method of cost allocation that assigns indirect costs to services using the activities. Using the ABC method unit cost of students in an educational institution can be computed more accurately compared to the traditional cost allocation approaches (Yilmaz and Coskun, 2012: 280).

ABC method provides data on cost factors, activities, resources, performance measurement, customer profitability, distribution chains, merchandisers, brands, and on other fields that directly affect the profitability of an enterprise. ABC method relies on processes, activities, and then products, services, and customers for resource costing so that the costing can be calculated more reliably (Cooper & Kaplan, 1988; Eker, 2002; Kaplan & Atkinson, 1998).

ABC methods consists of two phases: the first one is to accumulate total cost of the each activity and computing the cost of activity cost pools, and to deliver these accumulated costs to cost objects such as educational services through appropriate cost allocation base (Morse, Davis & Hartgraves, 2003: 185; Hilton, 1997: 196-197).

Originally designed to be used for business and manufacturing enterprises that produce goods used by the service-producing businesses because of the benefits of activity-based costing method was introduced by seeing the wide acceptance (Cooper and Kaplan, 1991: 372).

4. Allocation of Costs through the Usage of Activity Based Costing in Educational Institutions

In this part of the study we will summarize an implementation of activity based costing in a high school in Ankara, Turkey.

Firstly the activities in the school are defined. There are 16 activities: Activity-1 New student enrollment, Activity-2 Former student enrollment, Activity-3 Teachers Training, Activity-4 Students Orientation, Activity-5 Educational Activities, Activity-6 Olympic Studies, Activity-7 Summer School, Activity-8 Students' Clubs, Activity-9 Parent-Teacher Meetings, Activity-10 Certification Programs for Students, Activity-11 Health Care Services, Activity-12 Cooking and Transportation Services, Activity-13 Students Counsels, Activity-14 Administration, Accounting, Information, Cleaning, Transportation and Security Services, Activity-15 Graduation, Activity -16 Maintenance.

Secondly, indirect costs are assigned to each activity cost pool. In the annual budget of the school total cost accumulated as 4,745,250 TL, including materials and supplies expenses, salary expenses, subcontractor expenses, education expenses, outsourcing utilities and services, several expenses, taxes and other fees, depreciation and amortization. Budgeted cost of the period of the study is summarized in Table 1.

Table 1. Budget for Cost of Services

Cost of Services	Amounts of Expense (in TL)
1- Materials and Supplies Expenses	12,673
2- Salary Expenses	2,530,854
3- Subcontractor Expenses	1,359,089
4- Other Education Expenses	393,454
5- Outsourcing Utilities And Services	319,496
6- Several Expenses	35,298
7- Taxes And Other Fees	2,865
8- Depreciation And Amortization	91,521
TOTAL EXPENSES	4,745,250

Later, in the third stage, cost allocation base for each activity cost pool is determined. List of cost allocation bases for the activity cost pools is given in Table 2. Cost allocation bases carefully selected based on cause and effect relationship in order to reflect the actual consumption of the resources used by the cost objects during the period.

Table 2. Education Activity Centers and Cost Drivers

Education Activity Centers	Cost Drivers
Activity -1 New student enrollment	The number of new student enrolled
Activity -2 Former student enrollment	The number of former student enrolled
Activity-3 Teachers Training	The number of teachers
Activity -4 Students Orientation	The number of 9th graders
Activity -5 Educational Activities	The number of students in total
Activity -6 Olympic Studies	The number of Olympic Studies participants
Activity -7 Summer School	The number of summer school attendees
Activity -8 Students' Clubs	The number of Students' club participants
Activity -9 Parent-Teacher Meetings	The number of Parent-Teacher meetings
Activity -10 Certification Programs for Students	The number of certification program attendees
Activity -11 Health Care Services	The number of students in total
Activity -12 Catering and Transportation Services	The number of students in total
Activity -13 Students Counsels	The number of counseling activities for each grade
Activity -14 Administration, Accounting, Information, Cleaning, Transportation and Security Services	The number of Staff x Time *
Activity -15 Graduation	The number of graduates
Activity -16 Maintenance	Used Space x Time *

* This activity expenses II. distributed to other activities of the educational institution distributions.

In the fourth stage of the cost allocation, among the activities, Activity-16 Maintenance and Activity-14 Administration, Accounting, Information, Cleaning, Transportation and Security Services are defined as "secondary" activities. Before allocating the activity cost to cost objects, cost of these secondary activities allocated to other 14 activities.

In the fifth stage, costs of the 14 primary activities are allocated to cost objects. In this stage total cost of the activities accumulated from first level and second level allocation are allocated. Allocation completed by using the cost allocation rates. Cost allocation rates are calculated by dividing the total cost of each activity to the total quantity of the cost allocation base of the activity. For example cost allocation rate for the activity 1- New student

enrollment is 235.01 TL per new enrolled student. Grades in high school are selected as the cost object in allocation. There are four grades in the high school: 9th grade, 10th grade, 11th grade and 12th grade. For each grade, allocated cost of each activity is accumulated. Finally the unit cost of students is computed by dividing the total cost of the grades to the total number of students in each grade. Allocation of activity costs to cost objects and calculating the unit cost of students are summarized in Table 3. Cost per unit student of 9th grade, 10th grade, 11th grade and 12th grade are 7,956 TL, 8,410 TL, 8,255 TL and 7,788 TL respectively.

If the school do not implement activity based costing, unit cost may be calculated just dividing total cost of the school to the total number of students regardless of which grade the student is. This is traditional cost allocation approach and it ignores the differences in resource consumption differences between the grades. In that case unit cost of the student would be 8,112 TL per student in all grades. Unit cost is calculated by dividing the total cost of 4,745,250 TL to the total number of students of 585.

Comparison of traditional costing system and the activity based costing is given in Table 4. As it's seen in the table in traditional costing 9th grade and 12th grade students are overcosted, while 10th grade and 11th grade students are undercosted comparing the activity based costing.

5. Implementation of Activity Based Pricing

The school can implement activity based pricing using the activity based cost allocation information. Assume that the school targeted a 10% markup on activity based cost of a student. While the annual fee for each student would be 8,923 TL/student in traditional approach, the annual fees of the grades will vary in activity based approach. The annual fees in 9th grade, 10th grade, 11th grade and 12th grade would be 8,751 TL/student, 9,251 TL/student, 9,080 TL/student, and 8,556 TL/student respectively. The comparison of cost plus pricing in two approaches is given in Table 5.

Markup percentage is varied on the amount of investment to the school, cost of capital, alternative investment opportunities, etc. So that the markup in this case may be higher or lower than 10% depending on the factors mentioned.

School administration may adopt the activity based annual fee to each grade or they may slightly change depending on the behavior of the competitors and customers.

In all circumstances, the management aware about the profitability of the students in each grade by getting accurate cost information from ABC approach. The administration may make further decisions using these cost information. They may determine how much discount they can make in some cases. For example if the annual fee is set up as equally for each grade, management may apply discount to 9th and 12th grades, but do not apply any discount to 10th and 11th grades as a requirement.

It should be in consideration that there are still many factors affects the pricing such as customer demand, attitudes of competing educational institutions, public image of the school, political environment, legal regulations, country's economic conditions and other factors.

Table 3. Allocating Costs using ABC

Activity Centers	Cost Allocation Rates	9 th Grade Costs		10 th Grade Costs		11 th Grade Costs		12 th Grade Costs	
		Allocation Key Criteria x Rate	Activity Costs	Allocation Key Criteria x Rate	Activity Costs	Allocation Key Criteria x Rate	Activity Costs	Allocation Key Criteria x Rate	Activity Costs
Activity -1 New student enrollment	235.01 TL/ New student	180 x 235.01	42,302 TL	45 x 235.01	10,575 TL	20 x 235.01	4,700 TL	10 x 235.01	2,350 TL
Activity -2 Former student enrollment	163.50 TL/ Former student	-	-	115 x 163.50	18,802 TL	110 x 163.50	17,985 TL	105 x 163.50	17,167 TL
Activity-3 Teachers Training	2,344.87 TL/ teachers	15 x 2,344.87	35,173 TL	19 x 2,344.87	44,552 TL	13 x 2,344.87	30,483 TL	12 x 2,344.87	28,138 TL
Activity -4 Students Orientation	433.49 TL/ 9 th grader	180 x 433.49	78,028 TL	-	-	-	-	-	-
Activity -5 Educational Activities	4,101.33 TL/ student	180 x 4,101.33	738,343 TL	160 x 4,101.33	656,305 TL	130 x 4,101.33	533,248 TL	115 x 4,101.33	471,719 TL
Activity -6 Olympic Studies	5,154.66 TL/ Olympic Studies attendee	-	-	20 x 5,154.66	103,093 TL	10 x 5,154.66	51,546 TL	-	-
Activity -7 Summer School	323.15 TL/ summer school attendee	-	-	-	-	130x 323.15	42,009 TL	115 x 323.15	37,162 TL
Activity -8 Students' Clubs	271.16 TL/ Students' club attendee	85 x 271.16	23,049 TL	160 x 271.16	43,386 TL	90 x 271.16	24,404 TL	-	-
Activity -9 Parent-Teacher Meetings	4,060.33 TL/ Parent-Teacher meeting	6 x 4,060.33	24,362 TL	8 x 4,060.33	32,482 TL	8 x 4,060.33	32,482 TL	4 x 4,060.33	16,241 TL
Activity -10 Certification Programs for Students	140.60 TL/ certification program attendee	180 x 140.60	25,308 TL	160 x 140.60	22,496 TL	-	-	-	-
Activity -11 Health Care Services	79.23 TL/ student	180 x 79.23	14,261 TL	160 x 79.23	12,676 TL	130 x 79.23	10,299 TL	115 x 79.23	9,111 TL
Activity -12 Catering and Transportation Services	2,306.58 TL/ student	180 x 2,306.58	415,184 TL	160 x 2,306.58	369,052 TL	130 x 2,306.58	299,855 TL	115 x 2,306.58	265,256 TL
Activity -13 Students Counsels	200.77 TL/ student	180 x 200.77	36,138 TL	160 x 200.77	32,123 TL	130 x 200.77	26,100 TL	115 x 200.77	23,088 TL
Activity -15 Graduation	210.59 TL/ student	-	-	-	-	-	-	115x 210.59	24,217 TL
Total cost		1,432,148 TL		1,345,542 TL		1,073,111 TL		894,449 TL	
Unit Cost Per Student		1,432,148 TL /180=		1,345,542 TL /160=		1,073,111 TL /130=		894,449 TL /115=	
Total Cost/The number of students in the grade)		7,956 TL		8,410 TL		8,255 TL		7,778 TL	

Table 4. Unit Costs using ABC and Traditional Costing

	Cost Objects			
	9th Grade Costs	10th Grade Costs	11th Grade Costs	12th Grade Costs
Traditional Costing Method	8.112 TL/student	8.112 TL/student	8.112 TL/student	8.112 TL/student
Activity Based Costing Method	7.956 TL/student	8.410 TL/student	8.255 TL/student	7.778 TL/student
The difference between two approaches	156 TL/student	(298) TL/student	(143) TL/ student	334 TL/student

Table 5. Pricing using ABC and Traditional Costing

	Cost Objects			
	9th Grade Costs	10th Grade Costs	11th Grade Costs	12th Grade Costs
Fee per student using traditional costing method (The fees applied in all grades in high school are the same: traditional cost + 10% markup)	8.923 TL/student	8.923 TL/student	8.923 TL/student	8.923 TL/student
Activity based fee per student (activity based cost + 10% markup)	8.751 TL/student	9.251 TL/student	9.080 TL/student	8.556 TL/student
The difference between two approaches	172 TL/student	(328) TL/ student	(157) TL/student	367 TL/student

Conclusion

In this study we implemented the activity based costing method in a private school in Turkey and determined the annual fees using activity based approach. We found out that there are differences among the grades of the high school in terms of resource consumption. So that we refer different fees could be applied to different grade students. Even the fix annual fee is set in all grades, activity based approach help the managers to calculate the profitability of each student. Activity based data also provide support in other kind of decisions such as resource allocations, investment decisions, adding or dropping new units, and finally pricing decisions are all based on cost of the services. We found out if the schools evaluate their cost more precisely by implementing the activity based approach, there would be beneficial for the schools.

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Problem solving scale (pss-tr): a study of validity and reliability of the turkish version

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Abstract

The purpose of study is to investigated the validity and reliability of the Turkish version of the Problem Solving Scale (PSS; Willoughby-Herb & Neisworth, 1983). The sample of the study consists of 280 preschool students. Confirmatory factor analysis showed that the three-dimensional model fitted well: RMSEA= .071, CFI= .99, IFI= .99, RFI= .99, SRMR= .044. The internal consistency reliability coefficients of the scale were .96. Also the corrected item-total correlations ranged from .61 to .78. These results demonstrate that this scale is a valid and reliable instrument.

Keywords: Problem solving, Validity, Reliability.

1.Introduction

During the pre-school period, which is one of the most important phases of human life, children go through a multi-dimensional and rapid process. Pre-school period covers the early childhood period between the ages of 0 to 6. This period is the one that the child learns the fastest and also the brain completes the two third of its development during this time. This period encompasses not only intellectual development but also character development (Garton & Gringart, 2005; Swanson & Beebe-Frankenberger, 2004). In this process children get fast and permanent acquisition in accordance with high order thinking. In this context, the pre-school education process which addresses the most important period of children's development has to have some attributions which can develop children's following abilities and capacities: self-awareness, social skills, awareness of his surrounding culture and other cultures, communication skills, perception and kinetic abilities, analytical thinking, problem solving abilities, creativeness (Genç ve Senemoğlu, 1999; Mussen, Conger & Kogan, 1963).

Problem is defined, as a situation, which exceeds the current capacities and resources of the individual (Güven, 2001). According to Bingham (1998), a problem has three crucial properties. Firstly, a person must have an aim in his mind, secondly there must be obstacle while he tries to attain his objectives, and for the last one is that, the person must feel distress. When the relevant literature is analysed it can be observed that, there are different kinds of steps for solving problem (Erdoğan, 2000; Shapiro, 1998). But for Gelbal (1991), problem solving consists of consecutive phases being aware of problem definition of

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problem finding different ways for the solution and by implementing existing of solution strategies like elimination of problem is emphasized (Serin, Serin & Saygılı, 2010).

The child cannot learn problem solving skills systematically by him easily. For this by creating some surroundings to children for solving problems by themselves, creating some opportunities and planning some activities which are used for sustaining effective problem solving skills can be helpful (Kişisel & Yıldırım, 1983; Passolunghi & Siegel, 2001; Pajares & Kranzler, 1995). In this study, PSS was adapted into Turkish and its psychometric properties were examined with a sample consisting of Turkish preschool students.

2. Research Method

2.1. Participants

The participants of the research were 280 preschool students who were studying in Sakarya region during the academic year 2012-2013. They were selected by means of convenience sampling method. 180 were female and 100 were male. The age range of the sample varied between 4 and 6 years.

2.2.Measures

Problem Solving Scale. This scale which was improved by Willoughby-Herb and Neisworth (1983) consists of 25 items and sub-scale (For example, the child recognizes the main figures which the relationship between the play and object, is wanted.). The scale which consists of 25 items, 5-point Likert type from Totally Disagree to Totally Agree, (Problem Solving Scale -PSS-TR). Confirmatory factor analysis (CFA) was carried out for structure validity. Reliability of scale was examined with internal consistency and item analysis was examined with corrected item total correlation.

2.3.Procedure and Data Analysis

In the process of adaptation PSS into Turkish, the scale was translated into Turkish by 6 academics who have proficiency in English and then Turkish forms were back translated into English, and the coherence between Turkish and English forms were examined. After these, necessary corrections were made in terms of meaning and grammar and measurement properties. Turkish form was created and then was analysed by 5 academics who work in the Field of Psychological Counselling and Guidance and Assessment and Evaluation in Education, and some changes were made by taking their suggestions. Reliability of PSS was examined. For the construct validity CFA was used. Corrected item total correlations, was calculated. For reliability and validity analyses, SPSS 17.0 and Lisrel 8.54 (Jöreskog & Sorbom, 1996) programmes were used.

3.Results

3.1. Item analysis and reliability

At the end of the analysis, scale's factor of Corrected Item Total Correlation was line up between .34 and .80 understood. These diagnoses are shown in Table 1.

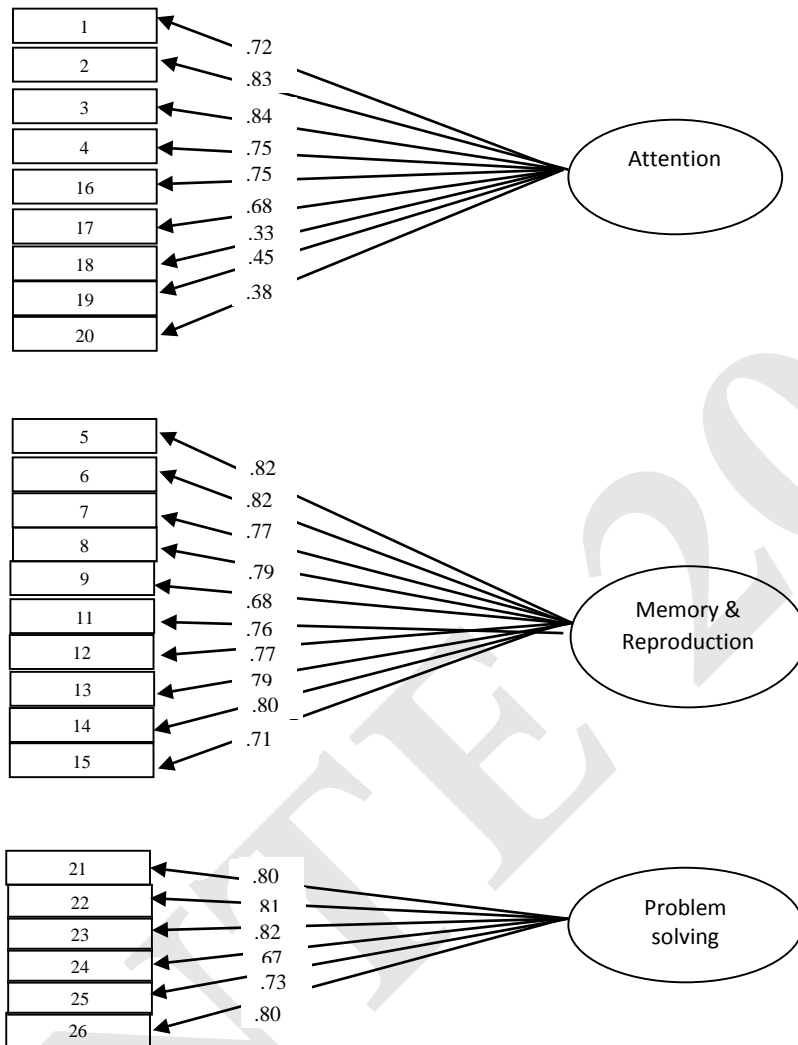
Table 1: *Item analysis results*

Item N.	<i>rjx</i>	Item N.	<i>rjx</i>	Item N.	<i>rjx</i>	Item N.	<i>rjx</i>
1	.68	9	.65	17	.80	25	.73
2	.77	10	.69	18	.80		
3	.79	11	.72	19	.75		
4	.73	12	.75	20	.76		
5	.78	13	.76	21	.76		
6	.77	14	.67	22	.77		
7	.73	15	.65	23	.61		
8	.74	16	.76	24	.67		

The internal consistency reliability coefficient of the scale was .96.

3.2. Confirmatory factor analysis

In this study, CFA was made to analyse the structural validity. In the study, it was found that rate of the chi square value was (6959,515) 1.88 regarding the three-factor model. Confirmatory factor analysis



showed that the three-dimensional model fitted well: $\chi^2=406.05$, $sd=203$, $p=.000$, $RMSEA=.071$, $RFI=.97$, $NFI=.98$, $NNFI=.98$, $CFI=.99$, $IFI=.99$, $RFI=.97$, $SRMR=.044$. The CFA results and factor loads in respect of the problem solving scale are presented Figure 1.

4. Discussion

In this research, PSS was adapted into Turkish and psychometric properties were examined with a sample consisting of Turkish students studying in preschool. In this study, the Turkish adaptation of PSS's was improved Willoughby-Herb and Neisworth, (1983) and searching reliability and validity of Turkish form was aimed. Groups which are leading reliability and validity of study, in terms of numbers, are enough in every respect of statistically analysis's. (Tabachnick and Fidell, 2001). PSS's form validity was searched with CFA. It shows that, PSS's Turkish form's reliability factor is high, and the original

form which is near to reliability is in sufficient level. For the assessment and evaluation instruments which are used in the studies, reliability level is considered as .70, measurements which were gained from PSS's Turkish form can be said, are reliable. When considered that it distinguishes the individuals really well in terms of measured features (Özdamar, 2004), in commenting the total substance correlation parameter, it is seen that the parameters of total substance correlation for substances .30 or higher are on a high level.

As far as the findings of PSS's studies on the validity and reliability of the form of Turkish language are concerned, it could be considered that the scale is ready to be used. However, as the validity and reliability studies are conducted on preschool students, it seems essential that the scale be conducted on different groups in terms of validity and reliability. The results of the examples studied on preschool students present that the scale has considerable level of validity and reliability.

Acknowledge

The author Pedro Tadeu thanks Professor Ana Almeida Faculty of Psychology of Coimbra University and Professor Maria Augusta do Nascimento, Sciences and Technology Faculty of Coimbra University, Coimbra, Portugal, for the help and suggestions before starting this project.

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4th International Conference on New Horizons in Education

Problem solving scale (pss-pt): a study of validity and reliability of the Portuguese version.

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Abstract

This study investigated the validity and reliability of the Portuguese version of the Problem Solving Scale (PSS; Willoughby-Herb and Neisworth, 1983) in the kindergartens of *Agrupamento de Escolas da Sequeira*. There were analysed 79 preschool students belonging to this school. The results obtained show that the adaptation of the PSSPT scale is a valid and reliable instrument to use in a future study.

Keywords: Mathematics Education; Problem Solving, validity, reliability

1. Introduction

Everyone understands that Education has changed across last decades, nowadays, no matter what level, age or gender students are, the work of a teacher is very hard concerning education process. Society progress is entering in the classrooms, either through new technologies, as computers, or even using old tools like board games, and is transforming preschools and schools in small experiences fields. Like Almeida (2012) said, *learning as well as playing follow us throughout life. Understood as a process, solving problems is also transversal to everyday duties*. So it's very important to pay attention to young children in kindergarten because, *the junior school years have been identified as a crucial period in the course of development of students' ATM (Attitudes Towards Mathematics), meaning that teachers have both, opportunity and responsibility, to promote their students' positive attitudes and high achievement* (Nicolaidou, M. and Philippou, G., 2003). So problem solving is an important issue in several disciplines across sciences all over the world, more particularly if we focus in Mathematics this aspect is even more important due to his connection with our daily life. International studies like PISA 2012 defined problem solving as, *relates to individuals working alone on resolving problem situations where a method of solution is not immediately obvious*, this is very important not only for the future of our students but also for society in general. The following scheme, Figure 1, is an overview of factors and processes for collaborative problem solving in PISA 2015, shows the importance for future of problem solving.



Figure 1: Overview of factors and processes for collaborative problem solving in PISA 2015

(<http://www.oecd.org/pisa/pisaproducts/Draft%20PISA%202015%20Collaborative%20Problem%20Solving%20Framework%20.pdf>)

We, as investigators and educators, should be interested in new process of transmitting knowledge facing students. There should be ways of measuring all this changes inside the classroom environment. So we pretend to test the validity and reliability of an adaptation of the Problem Solving Scale (PSS-Willoughby-Herb and Neisworth, 1983). This tool will be used with pupils in preschool facing a board game experiment. This is the initial part of a bigger project called LEGOMATKIND that will be done with support of the Danish company LEGO in Portugal and Turkey.

2. Research Method

In a brief review of literature there exist several scales to measure different kinds of problem solving skills. We start with the IPSS scale (The Independent-Interdependent Problem-Solving Scale) from Rubin, M., Watt, S. E., & Ramelli, M. (2012). The short version with 10 questions has a 7-point Likert-type response scale anchored *Strongly Agree* and *Strongly Disagree*. But we predicted that this will not serve our purposes due the ages of the population in study, so we decided later to use the PSS, which was improved by Willoughby-Herb and Neisworth (1983). From this we adapted and get a scale of 26 items, 5-point Likert type from *Totally Disagree* to *Totally Agree*, (Problem Solving Scale Portuguese-PSSPT). We expected to produce a scale divided into three factors, *Attention*, *Problem Solving* and *Memorization*. Later these scale turn to a 25 item scale. The adaptation and analyse of the PSSPT was done with 79 preschool students who were studying at *Agrupamento de Escolas da Sequeira*, (Guarda, Portugal), in 2012-2013. They were selected by means of convenience sampling. Following we have the characterization of the population in study.

The ages are from 3 until 5 years old, Table 1, from these we have 57% boys and 43% girls, Table 2.

Table 1: Ages of pupils from *Agrupamento de Escolas da Sequeira*

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 3,00	30	38,0	38,0	38,0
Valid 4,00	25	31,6	31,6	69,6
Valid 5,00	24	30,4	30,4	100,0
Total	79	100,0	100,0	

Concerning the gender of the population in study.

Table 2: Gender of pupils from *Agrupamento de Escolas da Sequeira*

	Frequency	Percent	Valid Percent	Cumulative Percent
Male	45	57,0	57,0	57,0
Valid Female	34	43,0	43,0	100,0
Total	79	100,0	100,0	

The knowledge of the pupils was not taken into account and the group were chosen randomly. The SPSS 20 was used to make the statistical analyses. It was done Exploratory Factor Analysis (EFA) for structure validity. Reliability of scale was examined with internal consistency and item analysis was examined with corrected item total correlation. Here are the results obtained for the PSSPT related to CITC, Table 3.

Table 3: Corrected Item-Total Correlation from *Agrupamento de Escolas da Sequeira*

P1	0,553	P14	0,732
P2	0,740	P15	0,790
P3	0,709	P16	0,875
P4	0,776	P17	0,821
P5	0,791	P18	0,811
P6	0,806	P19	0,776
P7	0,825	P20	0,854
P8	0,889	P21	0,789
P9	0,727	P22	0,897
P10	0,765	P23	0,820
P11	0,811	P24	0,854

P12	0,835	P25	0,892
P13	0,857		

The scale's factor of Corrected Item Total Correlation was line up between 0,324 and 0, 891. These diagnoses are shown in Table 4.

Table 4: Summary Item Statistics from *Agrupamento de Escolas da Sequeira*

	Mean	Minimum	Maximum	Range	Maximum / Minimum	Variance	N of Items
Inter-Item Correlations	0,653	0,324	0,891	0,568	2,753	0,012	25

The internal consistency reliability coefficient of the scale was 0.979 meaning that it's very good. In the study, EFA was made to analyse the structural validity, it was found the statistic Kaiser-Meyer-Olkin (KMO) 0,973 which means a very good factorial analysis. The value of chi square was (2476,666) with significance of 0,000 regarding the three-factor model another important indicator of the good EFA quality.

The internal consistency for the three factors is shown in the following Table 5.

Table 5: Corrected Item Total Correlation from *Agrupamento de Escolas da Sequeira*

Factor 1 - Memorization		Factor 2 - Attention		Factor 3 – Problem Solving	
Item	Corrected Item- Total Correlation	Item	Corrected Item- Total Correlation	Item	Corrected Item- Total Correlation
P5	0,802	P1	0,608	P20	0,876
P6	0,834	P2	0,783	P21	0,789
P7	0,860	P3	0,694	P22	0,879
P8	0,836	P4	0,739	P23	0,830
P9	0,758	P15	0,697	P24	0,903

P10	0,754	P16	0,853	P25	0,918
P11	0,817	P17	0,803		
P12	0,860	P18	0,792		
P13	0,816	P19	0,766		
P14	0,718				

In the last table we get CITC, this is the Pearson correlation coefficient of each item related to the others. We can observe high correlations between the data. The internal consistency of factor 1 – Memorization is 0,955, for factor 2- Attention we get 0,931 and the last factor 3- Problem Solving 0,957. This indicates very good consistency in each factor.

3. Conclusion

The PSSPT, adaptation of the original scale of PSS, found to be a very reliably tool in the future concerning our group of pupils in *Agrupamento de Escolas da Sequeira*. All the measures that were performed via SPSS 20 get us the positive feedback necessary to go for the next step of the project. When we were checking validity and reliability of PSSPT for the group of pupils in Guarda, Portugal, the same thing was done in Hendek, Turkey, by the colleagues from Sakarya University. They have tested the validity and reliability for the PSSTR-Problem Solving Scale Turkish (Kaya, Arslan, Tadeu & Demir, 2013 in press), with a translation of PSSPT. Both scales will be used in a future common project related to problem solving skills in kindergarten.

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The author Pedro Tadeu thanks Professor Ana Almeida Faculty of Psychology of Coimbra University and Professor Maria Augusta do Nascimento, Sciences and Technology Faculty of Coimbra University, Coimbra, Portugal, for the help and suggestions before starting this project.

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4th International Conference on New Horizons in Education

Procrastination, stress and coping among primary school teachers

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Abstract

In this paper we focus on finding the relationship between procrastination as personal feature manifested by behaviour, which is characterized by the postponement of activities and tasks to a later time, with the experienced stress (expressed by cognitive, emotional, social and physical dimension) and the preferred strategies of coping with stress (proactive coping, reflective coping, strategic planning, preventive coping, instrumental support seeking, emotional support seeking, avoidance coping). Based on professional resources, we assumed a considerable positive correlation between procrastination and experienced stress – cognitive, emotional, physical and social, positive relation between procrastination and avoidance coping and negative relation between procrastination and proactive coping by 194 primary school teachers from Slovakia (173 females, 21 males, mean age 38.6 years). To measure the research variables we used: General Procrastination Scale (Lay, 1986), Questionnaire for identification of stress level and burnout syndrome (Henning & Keller, 1996) and Proactive Coping Inventory (Greenglass et al., 1999). We confirmed our assumptions and we found a significant positive correlation between procrastination and stress (cognitive dimension $r=.512$, $p<0,001$, emotional dimension $r=.229$, $p=0,001$, social dimension $r=.331$, $p<0,001$) and avoidance coping ($r=.424$, $p<0,001$). We identify the negative significant correlation between procrastination and proactive coping ($r=-.422$, $p<0,001$), reflective coping ($r=-.244$, $p=0,001$), instrumental support seeking ($r=-.143$, $p<0,05$), emotional support seeking ($r=-.152$, $p<0,05$).

Keywords: procrastination, teacher's stress, proactive coping, reflective coping, strategic planning, preventive coping, instrumental support seeking, emotional support seeking, avoidance coping.

1. Introduction

The teacher's profession bestows quite demanding and psychologically diverse requirements on a person and it is possible to assert that especially in teacher's profession it is possible to meet unique significant stressors which can negatively influence the subjective content and well-being of teachers. Kyriacou & Sutcliffe (1977) used the term "teacher's stress", which they defines as a response of negative affect, usually accompanied by potentially harmful physiological changes, resulting from aspects of the teacher's job and mediated by the perception that job demands are a threat and by coping mechanisms used to reduce the threat. Kyriacou & Sutcliffe (1978) found four factors of teachers stress sources: pupil misbehaviour; poor working conditions; time pressures; poor school ethos. Křivohlavý (2001) determined these following stress sources: overload by the work quantity; time stress; excessively high responsibility; non-clarified competency; exhausting career effort; sleep deprivation; insufficient work possibilities on labour market; long-term tension; social conflicts. Chan et al. (2010) summarise from previous research and from their own research some significant stressors in teacher's profession: education reform policies, workload and time pressure, misbehavior of students and indiscipline, school management, working relationships, redundant teacher-related issues, school violence, continuing further

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education, low salary and others. According to research by Blahutková, Vacková & Cacek (2002), the most significant teacher's stressor (research conducted on a sample of Czech teachers) is the time pressure. Only after it there are other described stressors – low pupils' discipline in class; incorrect relations and cooperation with other teachers; insufficient rest; insufficient time for professional development; lack of parents' interest in cooperation with teachers.

Our research goal was to find out if procrastination can be a significant correlate of teacher's stress. In the context of above stated significant stress sources (Kyriacou & Sutcliffe, 1978, Křivohlavý, 2001, Blahutková, Vacková, Cacek, 2002, Chan et al., 2010) we focus our attention especially on the stressor "time pressure", whereas we are convinced that insufficient time management, stress and procrastination of teachers are highly coherent. Nutall (2013) expressly relates procrastination and time management and offers recommendations for superior time management: keep a daily 'to-do' list listing what must be done today, what should be done today and what might be done today. This principle is a significant barrier and stress source for procrastinating people because time planning strictly negates their feature of postponing the duties or work.

Procrastination has been defined as the irrational tendency to delay tasks that should be completed. Trait procrastination is the predisposition to postpone that which is necessary to reach some goal (Lay, 1986). According to the concepts of cognitive behavioural therapy (CBT), the procrastinators postpone their tasks primarily because they doubt their ability to accomplish them and they are afraid of possible negative consequences in case of their failure (Ariely, 2008). According to Burka & Yuen (1983), procrastination is a personal feature of people with lower self-confidence, tendency to laziness and loss of self-control. Cognitive frame of procrastination, which is not sufficiently covered by even CBT, claims that procrastination is an irrational personal disorder which represents logical but ineffective behaviour (Ariely, 2008). Nuttall (2013) mentioned that people procrastinate for a variety of reasons: lack of time management skills; lack of experience of self-management; underestimating the task required; lack of interest in the task; aversion to discomfort: once you get used to putting things off, it's hard to break through the 'pain' barrier; anxiety about failing, about not being good enough, feeling overwhelmed; difficulty in concentrating because of personal problems.

Procrastination has positive associations with perceived stress, negative life events, and daily hassles (Flett, Blankstein, & Martin, 1995). Schraw, Wadkins & Olafson (2007, in Stead, Shanahan, Neufeld, 2010) emphasize the fact that experiencing stress resulting from procrastination. Melton & Briggs (1960) differentiate 3 types of stress: physiological stress (caused such extreme temperatures, lack of oxygen, etc.), psychological stress (intense sensory stimulation) and task induced stress (occasioned by marked changes in the task requirements). Especially the last stress type is probably significantly accompanied by a person's procrastination. From our point of view, interesting findings were introduced by the research of Tice & Baumeister (1997), where the authors point to the fact that academic stress of university students negatively correlates with the procrastination during the start of term but the stress cumulates later in exam period when the students procrastinators show significantly higher stress levels compared to non-procrastinating students.

Jennet et al. (2003, in Skaalvik & Skaalvik, 2010) states, that the majority of teachers copes with stress successfully. Nevertheless, long-time influence of stressors in connection with non-effective coping strategies can lead to burnout. Burnout is often described as the syndrome of emotional exhaustion, depersonalization and reduction of personal success (Maslach et al., 1996). Maslach et al. (1996) identified emotional exhaustion as the key aspect of burnout, while Pines and Aronson (1998) included physical exhaustion characterized by low energy and chronic exhaustion. Hennig & Keller (1996) describe four levels of experienced stress and teachers' burnout. The cognitive level incorporates a negative view of one's own abilities, loss of self-confidence, negative and even cynical relation to pupils or their parents, loss of interest towards one's own professional field, problems with concentration and escape from reality. Emotional level is characteristic by irritation and impulsive behaviour, nervousness and inner tension, emotional exhaustion, anxiety, feeling of helplessness and despair, loss of pleasure from work and the feeling of underestimation. Physical level covers a fast fatigue, increased tendency to illnesses, vegetative issues, headaches, sleep disorders, high blood pressure, muscle tension, vertigo and

nausea, appetite disorders. The fourth level is the social level, characteristic by decrease of educational engagement, limitation of social contact with colleagues and friends, problems in family and private life, neglect of one's hobbies.

Authors Hennig & Keller (1996) divide strategies for coping with stress to professional area, private relationships, life attitude and health. According to authors, there are three bases for stress prevention: 1) decrease of stress situations throughout the work day; 2) reduction of emotional excitement appearing together with stress and 3) change of way of dealing with stress situations, which the individual can't influence. In the context of above mentioned, an effective method for coping with stress load in teacher's profession can be considered the proactive coping. Proactive coping is oriented to achieving targets and includes future requirements, which can lead to self-development. (Greenglass, 2002, Šolcová, Lukavský & Greenglass, 2006). Swarzer et al. (1999) describes proactive individual as ingenious, responsible, scrupulous, who bears responsibility for his/her own results and applies the vision of success. Proactive coping includes target environment and persistent heading towards set goal. Proactive individual accumulates resources, he/she is able to mobilize all resources if necessary, he/she consecutively avoids the sources of exhaustion, owns highly developed social skills of how to mobilize resources.

Aim of our research is to analyse the coherences of experienced teacher's stress (in all areas – cognitive, emotional, physical and social), strategies of dealing with stress load (Proactive coping, Reflective coping, Strategic planning, Preventive coping, Instrumental support seeking, Emotional support seeking, Avoidance coping) and procrastination of primary school teachers. We assume a significant positive correlation between procrastination and experienced stress – in all areas – cognitive, emotional, physical and social. We also assumed positive correlation between procrastination and avoidance coping and negative relation between procrastination and proactive coping.

2. Methods

2.1. Measures

To identify the level of stress and burnout syndrome by teachers, we used Questionnaire for identification of stress level and burnout syndrome from Henning & Keller (1996). The questionnaire is dedicated to define the level of stress influence on central psycho-physical functions and how strong is the general inclination to stress and burnout syndrome. Henning and Keller (1996) specify four areas of reaction on stress: 1) Cognitive dimension (CD): negative picture of own abilities, loss of self-confidence, a negative up to cynic attitude towards pupils or their parents; loss of interest for happening in own occupation field; problems with concentration and escape from reality. 2) Emotional dimension (ED): Irritation and impulsive behaviour; nervousness; and internal tension; affective exhaustion; anxiety, feeling of helplessness; self-remorse, feeling of hopelessness; loss of joy from work and feeling of non-appreciation. 3) Physical dimension (PD): quick exhaustion; increased tendency to diseases; vegetative problems (heart, breathing, digestion); headaches, sleep disorders; high blood pressure; muscle tension (stiff neck, shoulders, back muscles pain); vertigo and nausea; appetite disorders. 4) Social dimension (SD): decrease of educational commitment; limitation of contacts with colleagues and friends; problems in family and personal life; neglecting own hobbies and indulgences. Every area is measured by 6 questions, while the respondent answers on a scale: always (4 points), often (3 points), sometimes (2 points), rarely (1 point) and never (0 points). Level of inclination to stress and burnout syndrome (SB) is moving from 0 to 96 points, the higher values indicating a higher level of experienced stress and burnout. The internal consistency for the present sample was: SB $\alpha = .59$; CD $\alpha = .68$; ED $\alpha = .62$; PD $\alpha = .85$; SD $\alpha = .66$.

To identify the strategies of coping with stress load, we used Proactive Coping Inventory (PCI) from authors Greenglass at al. (1999). PCI questionnaire consists from 7 scales: Proactive coping (PrC), Reflective coping (RC), Strategic planning (SP), Preventive coping (PvC), Instrumental support seeking (ISS), Emotional support

seeking (ESS), Avoidance coping (AC), it is created altogether from 55 statements to which the respondent gives answers on a scale: (1) not at all true, (2) barely true, (3) somewhat true, (4) completely true. Level of Proactive coping is moving from 14 to 56 points, Reflective coping from 11 to 44, Strategic planning from 4 to 16, Preventive coping from 10 to 40, Instrumental support seeking from 8 to 32, Emotional support seeking from 5 to 20, Avoidance coping from 3 to 12. The internal consistency for the present sample was: PrC $\alpha = .70$; RC $\alpha = .85$; SP $\alpha = .68$; PvC $\alpha = .75$; ISS $\alpha = .82$; ESS $\alpha = .61$; AC $\alpha = .81$.

To identify the procrastination of teachers we used General procrastination scale (Lay, 1986). The scale is composed of 20 items that measure trait procrastination on a variety of everyday activities. Items are scored on a 5-point Likert scale ranging from 1 (False of me) to 5 (True of me). The mean of all items yields a composite score, with higher values indicating a higher tendency to procrastinate. The internal consistency for the present sample was $\alpha = .85$.

2.2. Participants

The research sample was created from 194 primary school teachers from Slovak republic. From the total number, 89% were females (N=173) a 11% males (N=21). Average age of research sample was 38.6 years, age scope was 24 to 58 years. Average length of teaching practice was 17.6 years (minimum 5 years, maximum 37 years of teaching practice).

We didn't discover differences by teachers in observed variables (Procrastination, Stress and burnout level, Cognitive dimension of stress, Emotional dimension of stress, Physical dimension of stress, Social dimension of stress, Proactive coping, Reflective coping, Strategic planning, Preventive coping, Instrumental support seeking, Emotional support seeking, Avoidance coping) from the aspect of sex, or the duration of teaching practice.

3. Results

Descriptive indicators (Table 1) are the representation of gross score (minimum, maximum, average and standard deviation) in observed variables. In the area of stress experiencing and burnout by teachers, we discovered that in average are teachers in the light stress level. Most intensive reaction to stress is visible in teachers' physical symptoms, but average values also in this area show only mild level of stress experiencing. In the level of burnout (score over 73 points) appeared 4 teachers (females).

In the area of analysing the relation between procrastination of teachers and experiencing stress and burnout (Table 2) we discovered significant positive correlation ($r = .295$). Likewise we noticed significant positive correlation between procrastination of primary school teachers and three areas of reaction to stress - cognitive ($r = .512$), emotional ($r = .229$) a social ($r = .331$). We haven't noticed a significant correlation between procrastination and the physical area of experienced stress, although the direction of this correlation is positive.

Table 1 Descriptive Statistic of Variables

	Minimum	Maximum	Mean	Std. Deviation
Procrastination	24	92	54.78	14.88
Stress and burnout	1	77	27.95	12.83
Cognitive dimension of stress	1	17	7.03	2.30
Emotional dimension of stress	1	21	7,25	3,30
Physical dimension of stress	1	22	8.04	3.95
Social dimension of stress	1	19	5.62	3.28
Proactive coping	23	58	41.72	6.12
Reflective coping	15	42	33.65	6.09
Preventive coping	14	38	30.12	4.59
Strategic planning	6	16	11.42	2.52
Instrumental support seeking	9	32	24.21	4.09
Emotional support seeking	8	20	16.29	2.46
Avoidance coping	3	12	8.96	2.37

Table 2 Correlation Analysis of Procrastination and Levels of Teacher's Stress

N=194		1.	2	3.	4.	5.	6.
1. Procrastination	Pearson Correlation	1	.295**	.512**	.229**	.110	.331**
	Sig.(2-tailed)		.000	.000	.001	.127	.000
2. Stress and burnout	Person Correlation	.295**	1	.431**	.585**	.502**	.503**
	Sig.(2-tailed)	.000		.000	.000	.000	.000
3.Cognitive dimension of stress	Pearson Correlation	.512**	.431**	1	.474**	.365**	.454**
	Sig.(2-tailed)	.000	.000		.000	.000	.000
4.Emotional dimension of stress	Pearson Correlation	.229**	.585**	.474**	1	.682**	.598**
	Sig.(2-tailed)	.001	.000	.000		.000	.000
5.Physical dimension of stress	Pearson Correlation	.110	.502**	.365**	.682**	1	.458**
	Sig.(2-tailed)	.127	.000	.000	.000		.000
6. Social dimension of stress	Pearson Correlation	.331**	.503**	.454**	.598**	.458**	1
	Sig.(2-tailed)	.000	.000	.000	.000	.000	

In the area of analysis of relation between proactive coping and procrastination of teachers (Table 3), we observed highly significant negative correlation ($r = -.422$), which means that teachers which are proactive have low value of procrastination. Procrastination of primary school teachers significantly negative correlates with some other coping strategies: reflective coping ($r = -.244$); instrumental support seeking ($r = -.143$); emotional support seeking ($r = -.152$). In the area of analysis of relation between avoidance coping and procrastination of teachers we observed highly significant positive correlation ($r = .424$), which means that teachers which are procrastinators prefer avoidance coping as a coping strategy.

Table 3 Correlation Analysis of Procrastination and Coping Strategies of Teachers

N=194		1.	2.	3.	4.	5.	6.	7.	8.
1. Procrastination	Pearson Correlation	1	-.422**	-.244**	-.127	-.070	-.143*	-.152*	.424**
	Sig.(2-tailed)		.000	.001	.077	.334	.046	.035	.000
2. Proactive coping	Pearson Correlation	-.422**	1	.604**	.324**	.137	.280**	.209**	-.372**
	Sig.(2-tailed)	.000		.000	.000	.057	.000	.003	.000
3. Reflective coping	Pearson Correlation	-.244**	.604**	1	.637**	.360**	.257**	.190**	-.216**
	Sig.(2-tailed)	.001	.000		.000	.000	.000	.008	.003
4. Preventive coping	Pearson Correlation	-.127	.324**	.637**	1	.403**	.214**	.061	-.058
	Sig.(2-tailed)	.077	.000	.000		.000	.003	.395	.420
5. Strategic planning	Pearson Correlation	-.070	.137	.360**	.403**	1	-.035	.128	-.124
	Sig.(2-tailed)	.334	.057	.000	.000		.631	.076	.086
6. Instrumental support seeking	Pearson Correlation	-.143*	.280**	.257**	.214**	-.035	1	.510**	-.131
	Sig.(2-tailed)	.046	.000	.000	.003	.631		.000	.068
7. Emotional support seeking	Pearson Correlation	-.152*	.209**	.190**	.061	.128	.510**	1	-.089
	Sig.(2-tailed)	.035	.003	.008	.395	.076	.000		.000
8. Avoidance coping	Pearson Correlation	.424**	-.372**	-.216**	-.058	-.124	-.131	-.089	1
	Sig.(2-tailed)	.000	.000	.003	.420	.086	.068	.000	

4. Discussion and Conclusion

Procrastination, a human feature mostly being linked with irrationality, connected with voluntary postponing or delay of intended activity course despite the presumption that the delay will not lead to increase of one's usefulness. In reality it means that a procrastinating person has a certain resolution to work on a set task but because of various reasons he starts to work on it much later than he planned or should. Procrastination is basically repeated voluntary decision making towards something that harms the person (Steel, 2007). Decision making process is connected with the intention to maximize a positive benefit (pleasure) and to minimize a negative benefit (pain) (Čerešník, 2012). In this sense, procrastination can be perceived as an occasional evading

of activity or task execution with the aim to avoid actual strain and effort necessary to achieve it. This leads to positional experiencing of irrational positive benefit. Lay (1986) states that it is natural, if an individual occasionally procrastinates, however excessive procrastination causes the feeling of guilt from unfinished task which should have been accomplished.

Procrastination affects every fourth to fifth person, at students is this number almost 40%. The occurrence of procrastination in the world (with the exception of USA) historically increases, while at individuals decreases with age (Díaz-Morales et al., 2008; Steel, 2007). Steel states that the reason of this phenomenon could be a life-long learning of effective self-regulation strategies. Ferrari (1994), Milgram & Tenne (2000) distinguish two main types of procrastination: behavioral and decision procrastination. The combination of these two types of procrastination is known in the literature as dysfunctional procrastination, which is defined as the chronic delay of tasks (Ferrari, 1994). Decision procrastination means to put off making a decision within some specific time frame (Orellana-Damacela et al., 2000) and it is based on postponing the decision based on fears, worries and inner confusion, which activate metacognitive solution of a problem, which at the same time leads to postponing of the decision (Milgram & Tenne, 2000). Behavioral procrastination is the tendency to delay the beginning and/or the completion of tasks (Orellana-Damacela et al., 2000).

In our research we focused on observation of the relation between primary school teachers' procrastination and the level of their experienced stress, as well as with the strategies of handling stress. We discovered that the experienced stress is highly related to primary school teachers' procrastination. A procrastinating teacher has a higher tendency to experience postponed tasks and duties than stressors, although according to existing findings of other authors (Tice & Baumeister, 1997), their experienced stress probably rises adequately to approaching deadline of the task. Research studies suggest that decisional procrastination represents a stable individual difference variable characterized by delays in making decisions, particularly under stressful circumstances (Ferrari & Dovidio, 1997). Our findings show that the most saturated area of experienced stress in relation to procrastination is the cognitive level of experienced stress. High correlation shows that either actual cognitive stress experiencing, accompanied by negative picture of own abilities, loss of self-confidence, negative attitude to pupils/parents, loss of interest about events from professional field, problems with concentration and escape from reality directly activates teacher's procrastination in the sense of decision procrastination, or the teacher normally behaves as a procrastinator, thinks and decides in the direction of postponing the tasks and duties, which cumulates his experiencing of stress in cognitive area and displays itself in above stated personal characteristic features.

Procrastination has been linked to several negative emotional states and outcomes and procrastinators perceived this behaviour as a problem they wanted to reduce (Orellana-Damacela et al., 2000, Steel, 2007). We discovered a significant correlation between teachers' procrastination and emotional manifestations of experienced stress. Teachers procrastinators express themselves by irritation and impulsive behaviour, nervousness and inner tension, emotional exhaustion, anxiety, feeling of helplessness and despair, loss of pleasure from work and the feeling of underestimation. We also discovered that teachers procrastinators significantly experience stress also in social level, they are characteristic by decrease of educational engagement, limitation of social contact with colleagues and friends, problems in family and private life, neglect of their hobbies.

Procrastination as a personal feature (Lay, 1996) has a positive relation to avoiding behaviour. According to our findings the teacher procrastinator voluntarily prefers avoiding behaviour as a strategy of coping with stress. Behavioural procrastination itself is related with the delay of accomplishment of bigger and smaller tasks. It means evasion and aberration from a given task in favour of other activities. We also discovered that teaches' procrastination is in negative relation to proactive behaviour which is considered to be an effective coping strategy. Proactive behaviour belongs to highly effective strategy of handling stress situations. It is a direct decrease of negative impacts, including depression and burnout syndrome, especially emotional exhaustion and cynicism, but also the feeling of anger. It is a positive strategy which is perceived as a support of individual's independent growth, his professional and life efficiency (Greenglass et al., 1999). According to our findings, with

the stressor in operation, procrastinating teachers don't prefer orientation on goals and future demands that could lead to self-development but they have the tendency to avoid it.

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Professional development of early childhood mentor teachers in teaching math

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Abstract

Importance of acquisition of early math skills and concepts on future school achievement has been widely acknowledged. Effective early math education takes place only when teachers are donated with necessary teaching competencies and attitudes toward math education. Those competencies are largely acquired during student teaching practices. Mentoring teachers by playing a role model for and supervising student teachers appear to be the most significant actors during this process. This study explores how early childhood mentor teachers define the effectiveness of their own pre- and inservice education in their professional development particularly in regard to math teaching skills and practices. Data was collected through semi-structured interviews with the preschool teachers working at the different preservice teacher placement sites. Results showed that the participants generally leaned on the collegial support and mentoring reflecting an almost total disregard for the teacher education courses they received during their undergraduate education. Student teaching received a mix of views whilst inservice trainings that are provided on a regular basis appeared to provide no teacher training on early math.

Keywords: early childhood; math; teachers; mentors; professional development.

1. Introduction

The accumulated empirical evidence regarding development of children's mathematical skills and understanding has disproved the notion that children in early years are too young to learn mathematics (Aubrey, 1993; Baroody, Lai, Li, & Baroody, 2009; Charlesworth & Lind, 1999; Davies & Walker, 2008; Flavell, Miller, & Miller, 1993; Ginsburgh & Seo, 1999; Griffin, 2004; Starkey, Klein, & Wakeley, 2004; Wynn, 1992). In fact, children's daily engagement with mathematical concepts and procedures in their natural environments helps them build varying levels of skills before any formal instruction (National Association for the Education of Young Children [NAEYC], 2010). This realization of the knowledge base that children bring to educational environments along with the research findings that linked successful early math experiences to future school achievement (Tsamir, Tirosh, & Levenson, 2011) has led to inclusion of math skills and concepts as an important part of early childhood standards in many countries including the U.S. and Turkey (Turkish Ministry of Education [MEB], 2006; NAEYC, 2010; National Council of Teachers of Mathematics [NCTM], 2000). Development of certain math skills and concepts even become a prerequisite for primary school entry.

Acquisition of expected early math skills and concepts largely depends on the quality of education provided by teachers (Borko, 2004; Garet et al., 2001). Indeed, teacher expertise explains almost half of the variance in

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learning mathematics (Rhoton & Stile, 2002), which laminates the significance of teacher training and professional development. Teachers of young children need to have a strong background in domain specific knowledge, how mathematical skills and concepts are acquired by children, and effective pedagogies (Cullen, 1999; Darling-Hammond, 2000; Garet et al., 2001). Clearly, this means, teacher professional development is to be far from a simple provision of a training to bring out the natural instinct of an individual to teach, on the contrary, it is to be seen as a complex process in which many elements and factors come to play in interaction (Avalos, 2011; Borko, 2004; Kedzior, 2004). Such teacher related factors as job-commitment, willingness and openness to change, cooperative attitudes and practices as well as contextual factors including traditions, educational policies and reform movements, working conditions, school administration, student body, and professional development opportunities have an influence on the impact of teacher development initiatives. Success of a teacher-training program at one setting does not guarantee the same level of success at another.

The path to a career in teaching starts with formal college level courses, field experiences and student teaching and later embodies informal collegial support and interactions as well as formal and structured group trainings and postgraduate courses (Avalos, 2011). A similar path is followed by early childhood teachers in Turkey. First, they receive a nationwide well-structured coursework at a four-year college program that also includes a three-credit-course on early mathematics. Majority of the courses are a good blend of theory and practice hours. This standard coursework also gives teacher candidates opportunities to practice their teaching skills in real classroom environments as part of their three-semester-long student teaching placements. Mentor/cooperating teachers play an important role during this process by facilitating, guiding, and supervising student teachers in their struggle to put what they learned at school into practice whilst developing their teacher identity (Avalos, 2011). Upon hiring, all teachers receive a total of four weeks of inservice training each year throughout their career.

For the last two decades, an ambitious government initiative to provide all children access to early childhood education programs has been implemented in Turkey. The main components of this comprehensive initiative entail increasing the number of preschool and kindergarten programs, hiring a drastic number of new teachers, development of national standards and the curriculum, and revision and provision of both preservice and inservice teacher trainings. The success of this educational reform largely falls on the shoulders of teachers. Cooperating teachers are among the key participants in preparation of future teachers (Zeichner, 2002). With this understanding in mind, our study focused on early childhood mentor teachers' thoughts on effectiveness of their own professional development experiences in teaching mathematics. Additionally, we aimed to reveal the sources from which teachers drew their ways of teaching math to young children.

2. Method

2.1. Participants

The participants were recruited from public early childhood programs where student teachers are placed. A total of 17 teachers participated in the study. They were all cooperating teachers during the student teacher placements in that school year. All the participants had a four-year college degree in early childhood education. The range of teaching experiences of the participants varied from 4 to 28 years.

2.2. Data collection and analysis

Data collected through semi-structured interviews with the participants. During the interviews, the participants were asked questions about their preservice and inservice mathematics education trainings. All the interviews were tape-recorded and then transcribed.

Content analysis was carried out on data in order to reveal underlying themes. Pseudonyms replaced the real names of the participants in order to protect their identity.

3. Findings

3.1. Effectiveness of preservice education on teachers' practices

Preservice mathematics education preparation includes a mandatory course on early mathematics, pedagogy courses, and field experience and student teaching.

3.1.1. Effectiveness of Mathematics Education in Early Childhood course and other pedagogy courses

The participants in majority did not express positive views on this required course and were very critical of the way it was thought. Apparently, the course failed in reaching its goals because of such reasons expressed by the participants as lack of commitment and job-ethic of instructors, provision of inadequate opportunities for practice, failure to establish the link between theory and practice, and course content and aims not being followed by instructors. Defne, one of the participants, went on to narrate her experience as:

“All we did throughout the semester was making teaching materials. Nothing else. It was no different than the material development course. No mention of how to teach math. I learned nothing in that course that I can use now.”

For some of the participants, there was nothing to draw from that course to apply in their classrooms because of the instructors' failure to make connections between theory and practice. Banu remembered:

“I did not get anything at college that I could apply in my practice now. We just had to memorize a book called “instinctive mathematics” to get a passing grade. Nothing else.”

Selin, on the other hand, had to receive the course from an instructor who was not an expert on educational pedagogies. She explained:

“The course was all around pure mathematics. We were thought high level of mathematics, which absolutely does not have any place in our field. What we learned in that class had got nothing to do with teaching math to young children.”

3.1.2. Effectiveness of field experience and student teaching

For some of the participants, there was nothing to remember from their student teaching experience while for some others it was a limited opportunity to observe use of materials and play in teaching math. Some of the participants neither observed nor practiced any math activity during their field experience and student teaching. Ayse:

“We were on our own during our student teaching. The teacher was never in class. I learned nothing from her during my student teaching.”

For Esen, presence of the cooperating teacher in the classroom did not make much difference since she did not seem to have the necessary skills to teach math to young children. Esen:

“Even though the center I was placed in for my student teaching was equipped with nice materials and in good condition, inexperience of the classroom teacher was an impediment in my learning experience.”

Leyla experienced almost a blackout when it came to talking about her student teaching. Leyla:

“I don’t remember anything about those days. It is hard to tell if it was effective or not. I cannot tell if it is because there was nothing to remember. I just don’t remember.”

Those participants who found their student teaching somewhat effective were the ones who had a chance to observe and taught by their cooperating teachers how to use materials in teaching mathematics. Banu, for example, said, “I learned how to use materials like puzzles in math activities.” For Dilek, the experience was fruitful in teaching her how to incorporate different activities in teaching math. Dilek narrated, “She was a good resource to learn how to develop good and variety of math activities.”

3.2. Inservice trainings

Based on the participants’ accounts, it became clear that early mathematics was largely ignored at inservice trainings. Rather than providing domain specific knowledge and practice, inservice trainings were oriented towards an entire body of teachers from all backgrounds. Lecture based trainings were delivered in crowded rooms keeping the participants as passive listeners with no opportunity to take an active role or to cooperate with other teachers in their learning. Ayla was among the ones that scrutinized the effectiveness of those trainings:

“I don’t think it brings any benefit at all. They put hundreds of teachers in one room with an instructor who just lectures, pardon, just reads from the slides. No practice what so ever. It’s not the right way to provide education.”

Not impressed by the teaching styles of the trainers, Sakira also complained about ineffectiveness of the inservice trainings:

“They are just waste of time. I don’t know where they find those trainers. They cannot keep us engaged. And, subjects related to preschool education are never a part of the regular trainings.”

3.3. Collegial support

Inadequacy of their formal training led many participants to rely solely on their fellow teachers as a resource to learn from and receive support. In fact, for the majority of the participants, peer support appeared to be the only resource that was highly mentioned and drawn upon despite the fact that professional development experiences of those same colleagues were also not so promising. A firm statement by one of the participants, “I learned everything about teaching from my more experienced colleagues” was the epitome of the participants’ accounts. Considering the fact that the participants were employed at the same centers, were uninformed by the theory and received inadequate practical training in regard to teaching math, their professional support to each other was quite likely to be something “unproductive socialization,” as Tigchelaar and Korthagen (2004) would call, leading only to the continuum of a vicious cycle of poor teaching.

4. Conclusion/Recommendations

The study showed that preservice and inservice teacher training programs fail to provide effective training in early mathematics education leading teachers solely to rely on their colleagues for guidance in the process of their occupational socialization. However, their own lack of a strong background in teaching early math raised questions about the quality of guidance those mentoring teachers supplied. It is also alarming that all the participants in the study were the cooperating teachers who were supposed to be good role models for the student teachers placed in their classrooms. A vicious cycle of poorly trained teachers would continue, making the early childhood education initiative's ultimate goal to end educational and class disparities unlikely to achieve unless immediate measures are taken to intervene.

As part of the solution, first of all, measures should be taken to hold all participants playing a role in teacher education processes be accountable for fulfilling their job requirements. An accreditation system for college level teacher education programs could be developed in order to bring quality into preservice education. It is also essential that teacher candidates be given opportunities to gain experience in quality environments where best practices are preached and realized. Professional development trainings should also be restructured under the light of empirical evidence that describes in detail what makes a teacher training program work. A particular attention should be paid to provision and delivery of professional development opportunities for teaching mathematics to young children in order to help teachers develop a strong background in teaching mathematics and make connections between theory and practice.

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Profile of multidisciplinary groups and collaborative styles in interdisciplinary research

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Abstract

The aim of this study was to identify the relationship between the profile of multidisciplinary groups formed to acquire integrative knowledge skills and their collaborative styles to develop interdisciplinary research projects. We analyze the experience of twelve multidisciplinary teams in professional update courses in interdisciplinary research. The results suggest that the combination of high heterogeneity in terms of disciplinary training and relative homogeneity in age and academic level of the team's members (concentrated in postgraduate studies in progress) was more appropriate to effective articulation of knowledge. We propose some criteria to configure ideal teams in similar educational programs.

Keywords: collaborative styles; integrative knowledge; interdisciplinary research; multidisciplinary groups; professional update courses.

1. Introduction

The aim of this study is to characterize collaborative styles in interdisciplinary research adopted by multidisciplinary groups in relation to their members' socio-academic profile, which together configure a group profile with a higher or lower heterogeneity. Team profile (regarding team size, members' academic level, sex, age, mono- or pluridisciplinary training, among other characteristics) is a key aspect in the dynamics of interdisciplinary research groups (Lee, 1997).

In an earlier study, we identified five collaborative styles associated with the socio-academic profile of six multidisciplinary groups pertaining to the Professional Update Diploma in Interdisciplinary Research (Diplomado de Actualización Profesional en Investigación Interdisciplinaria / DAPII in Spanish) at the Center for Interdisciplinary Research in Sciences and Humanities of the National Autonomous University of Mexico (Blazquez, García and Villa, 2012).

The way in which the task corresponding to the theoretical-practical module was performed -i.e., designing a proposal for an interdisciplinary research project- was the benchmark used to analyze collaborative style differentiation. It was observed that in some cases the way in which each group performed the task led to an identification of the task outcome with the academic program's objective (regarding the collective construction of the project) and, in any case, with the goal of obtaining the Diploma. The aforementioned occurred when the inherent tension in collaborative work in heterogeneous groups was dealt with in three different ways: a) when it was resolved through dialogue and agreements; b) when it was dissolved through condescendence; or c) when the tension was heightened due to a student's attempt to assume pre-eminence. These divergent strategies were associated to the way in which cognitive conflict was dealt with within the group dynamic. Although cognitive

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conflict—i.e., the possible incompatibility between students' prior conceptions and the new meanings emerging from teamwork—is intrinsic and necessary to interdisciplinary research (O'Donnell and Sharon, 2005), we considered that it was important to inquire whether some of the socio-academic profiles of the participants or the groups' degree of heterogeneity favored or hindered dealing with cognitive conflict with a certain degree of openness.

One of the distinctive features of interdisciplinary teamwork is its heterogeneous character (Klein, 2005). But, as far as its work dynamic is concerned, it is characterized by the fact that it combines highly intense interaction processes with vigorous discussions. Team members are thus obliged to think reflectively and adopt flexible stances regarding those held by unidisciplinary or multidisciplinary projects (Lyll and Meagher, 2007). Within the territory of organizational psychology, an interdisciplinary work canon is established that includes the relativization of the certainties of the individuals with a background in each discipline, the questioning of its paradigms and foundations or the possibility of considering other stances, even if they are not shared (see Martínez, 2013). Nonetheless, it is important to compare the interdisciplinary work experiences of a variety of groups following common methodological guidelines in order to thus identify the underpinnings of possible dialogue limitations or advantages and collaboration in this kind of project.

The aforementioned study highlights the importance of symmetry within multidisciplinary groups regarding their members' academic trajectories in order to reach authentic collaborative work. In any case, asymmetrical relationships elicit attitudes of insecurity and distrust and set up marginalization processes like those identified by Klein (2005) when analyzing psychological and social hindrances to teamwork.

The DAPII diploma, in its 2012 edition, not only allowed us to corroborate these first results in the study of collaborative styles, but mainly enabled us to delve more deeply into their characterization. A comparative analysis of collaborative styles, based on how the students reported their perception of teamwork, thus offered guidelines to analyze both the individual and group strategies that the students set up in order to deal with the tensions inherent to interdisciplinary research in the process of learning collaborative skills.

2. Method

This work is based on the analysis of the experience of six multidisciplinary groups from the 2011 DAPII diploma and six groups from the 2012 DAPII diploma at CEIICH-UNAM. These groups were constituted in agreement with the group members' choice regarding the thematic lines proposed by the Academic Committee. The themes in the 2011 DAPII diploma were: scientific culture (2 teams), citizen culture, new communication forms, environmental challenges and health issues. The themes chosen by the groups in the 2012 DAPII diploma were: education and the environment; citizen culture and public spaces; migration and rural development; education and social development, aging and education, as well as economic and social development.

In order to meet the teaching program's goal of developing student skills to conduct and assess interdisciplinary research, the groups formulated a proposal for an interdisciplinary research project based on the methodological criteria for differentiation and integration established by Rolando García to study complex systems (García, 2006). A questionnaire was designed to identify how students perceive teamwork. They were asked to evaluate their team's efficiency regarding: a) communication; b) cooperation; c) style for setting up agreements; and d) agreement compliance. They were also asked their opinion regarding their full understanding of the team's task to develop a proposal for a research project with an interdisciplinary approach and the team's commitment to implement it (see Appendix A).

The questionnaire had three sections: the first section was comprised of 20 statements related to the aforementioned themes which the students could agree with, disagree with or rate "more or less." The second section consisted of a teamwork evaluation rating each of these items from 0 to 10. This rating is called "assigned" rating. Two evaluations of each item were thus obtained from each student: the rating obtained from

the statements in the first section lacked nuance (ten points were allocated to each “yes” or “no” with a positive opinion, zero points to each “yes” or “no” with a negative opinion, and five points to each “more or less” answer). This rating, called “revealed” rating was confirmed, and in any case weighted with the assigned rating in the second section. The questionnaire’s third section consisted of open-ended questions regarding the issues identified in the groups’ teamwork as well as suggestions aimed at solutions.

3. Results

Figures 1(a) and (b) show the average rating assigned by each student to the six topics corresponding to collective work. It was observed that groups 3a and 5b presented the lowest ratings. The group members’ predominantly negative evaluation was confirmed by their revealed ratings (Figures 2(a) and (b)). A higher score (over 8 points) prevailed in both ratings among the rest of the teams. In each group, a certain correspondence between the ratings for group process and expectation fulfillment was observed (Figures 3(a) and (b)).

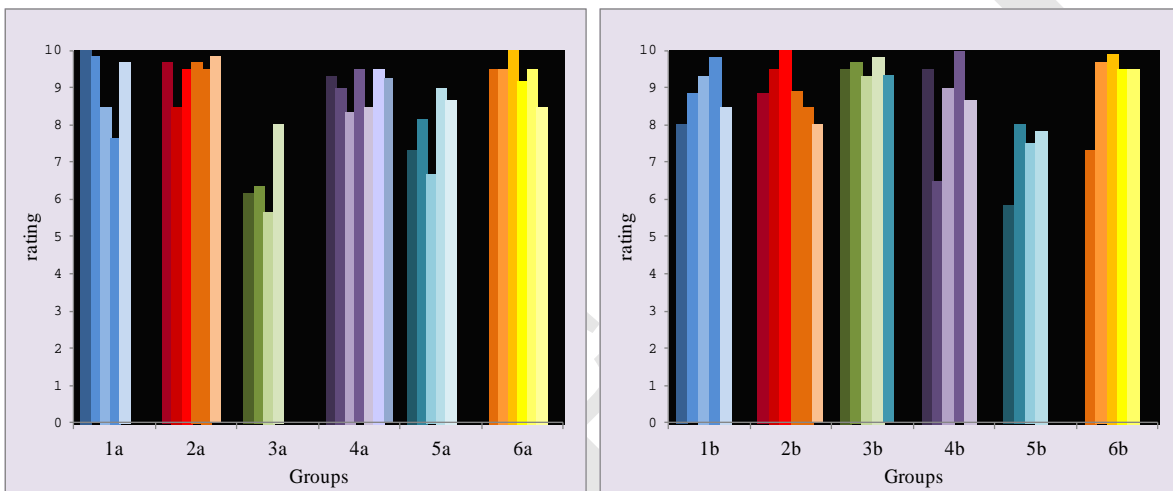


Fig. 1. (a) Group process assigned rating (2011 DAPII); (b) Group process assigned rating (2012 DAPII)

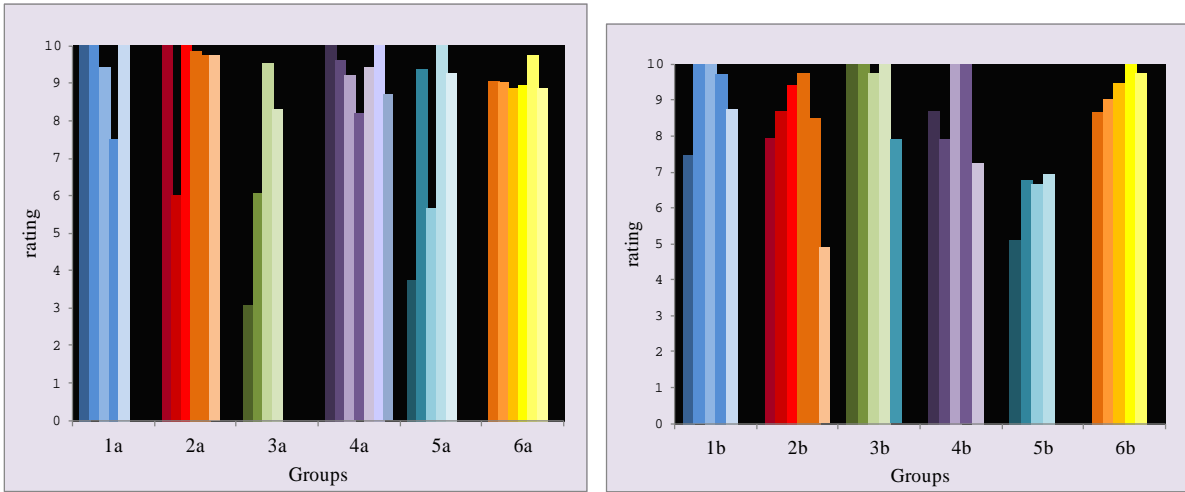


Fig. 2. (a) Group process revealed rating (2011 DAPII); (b) Group process revealed rating (2012 DAPII)

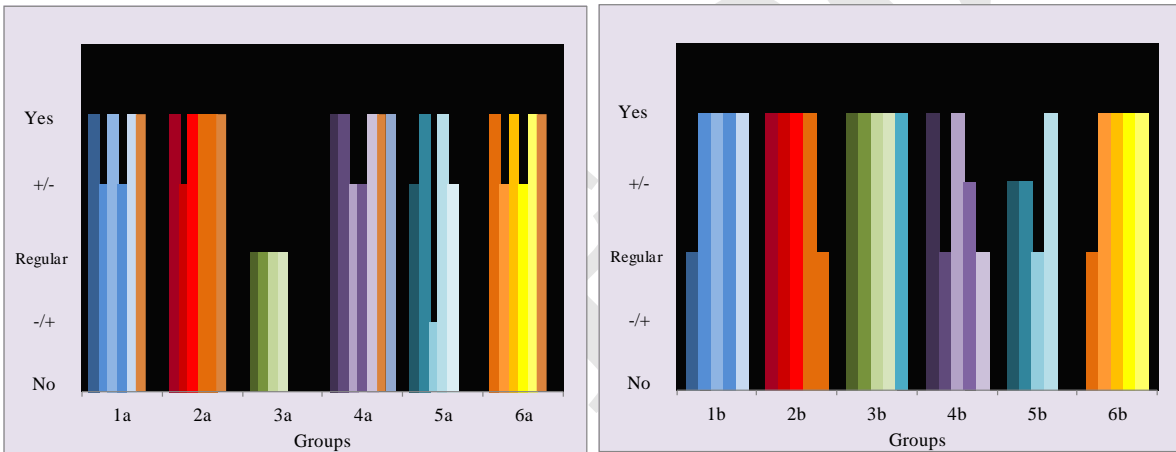


Fig. 3. (a) Expectation fulfillment (2011 DAPII); (b) Expectation fulfillment (2012 DAPII)

A comparative examination of group 3a (comprised of three women and one man) and group 5b (comprised of four women and one man), based on this first differentiation, showed that their socio-academic profile was different since the age range in group 3a was from 29 to 42, whereas the age range in group 5b was from 28 to 62. All students in group 5b had a pluridisciplinary academic background. As a whole, the group had studies in 11 different disciplines (Biology, Communication, Information Sciences and Techniques, Sociology, International Development Studies, International Studies, Visual Arts, Philosophy, Education and Teaching, Art History and Higher Education Management). Students in group 3a presented two cases of monodisciplinary academic background with studies in 7 different disciplines (Physics, Urbanism, Human Settlement Design, Regional Studies, Economics, Communication and Sociology). These groups did not have a similar academic profile since there was a more extreme polarization of academic degrees among the students in team 3a (two students with a BA degree and two with a PhD) than among students in team 5b (three individuals with MA studies -one of whom had graduated- and two individuals with PhD studies (one of whom had graduated). In

spite of this, both teams presented two individuals with a more extensive academic trajectory in terms of their teaching, research and even academic-administrative experience. This manifested as an asymmetrical relationship which was a decisive factor in the decision-making process and in the way in which cognitive conflict was dealt with. Students in group 3a reported problems in all topics regarding group process. Figures 4(a) and (b) show that these problems occurred to a larger extent in the areas of task understanding, communication and commitment. This translated into a lack of compliance with agreements. Two female students (with marked differences in research experience) expressed conceptual and methodological differences which were attributed to their different academic backgrounds (Economics and Sociology). In the final phase of the course, a less experienced female student self-marginalized (associated with health issues reported through medical certificates with a possible manifestation of stress). As a result of this split, two research project proposals were presented. One was signed and submitted by three members, whereas the other one was submitted by one member, but gave credit to the four students.

Students in group 5b also reported problems in all the topics regarding group process, particularly in communication and compliance with agreements (Figure 5(a) and (b)). In this group, there were differences in communication styles and in the understanding of teamwork dynamics among the female students with a higher academic background (a PhD student with All-But-Dissertation –ABD- status and a PhD graduate). The guidelines established by the female student with the most extensive academic trajectory who was also the most senior team member (age 62) prevailed. In this group, cognitive conflict was not attributed to the different academic backgrounds (Sociology and Philosophy). As in group 3a, a female student who had PhD studies with ABD status self-marginalized in the final phase of the course (also associated with health issues reported through medical certificates, and a possible manifestation of stress). In spite of this rupture, the research project proposal was presented by the group as a whole.

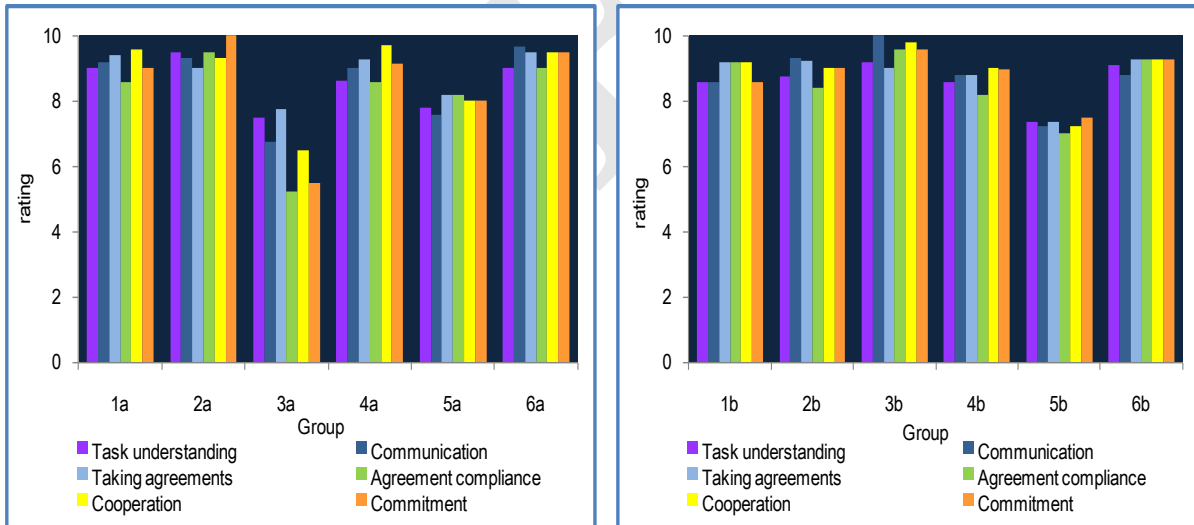


Fig. 4. (a) Teamwork assigned rating (2011 DAPII); (b) Teamwork assigned rating (2012 DAPII)

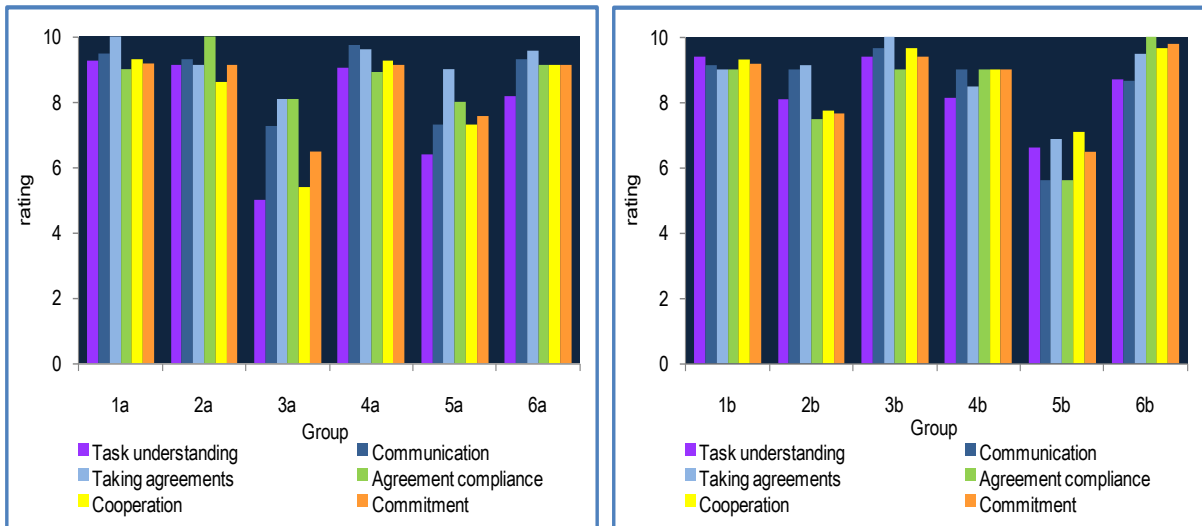


Fig.5. (a) Teamwork revealed rating (2011 DAPII); (b) Teamwork revealed rating (2012 DAPII).

Both group 3a and 5b avoided addressing the unresolved issues in the teamwork process in the project. In these groups, cognitive conflict took place in an asymmetrical relationship between team members. One showed contrasting academic trajectories and the other presented disagreement about leadership. This aggravated the conflict culminating in a rupture, which led to a collaborative style focused on task outcome and emphasis upon prestige. Although ratings above 8 prevailed among other teams that did not experience rifts, it was noted that in groups 1a, 2a, 5a, 1b, 2b, 3b, 4b and 6b at least one of its members gave a low rating, which was an assigned or revealed rating, or both. Upon ordering the groups based on the average assigned and revealed ratings of each of its members in all topics (Figure 6), it was observed that those that had a positive rating of all their members (4a and 6a) did not reach the series' highest score. A comparative analysis of the split groups, allows for an interpretation of the possible meaning of these disagreements and agreements.

Group 5a, comprised of four women and one man, with ages ranging from 44 to 61, had a relatively homogeneous socio-academic profile in terms of member ages (all were over 40) and academic level (two MAs with ABD status, one female student with an MA and two PhDs with ABD status). However, this group (comprised of four members with a pluridisciplinary academic background, one with monodisciplinary education, as a whole had studies in 8 different disciplines: Physical Education, Pedagogy, Anthropology, Medical Anthropology, Medicine, Public Administration, Biochemical Engineering and Microbiology) was characterized by its difficulty to listen and accept critical opinions from team colleagues. In this group, according to the revealed rating, three individuals considered the group's teamwork appropriate, whereas two estimated that it was deficient, particularly regarding compliance with agreements. This divergent vision can also be observed in expectation fulfillment, since two individuals reported that expectations had been fulfilled, another two considered that they had not been fully met and another answered that expectations had not been fulfilled at all.

In spite of cooperation issues, the group complied with the workshop's task with an outcome-oriented collaborative style.

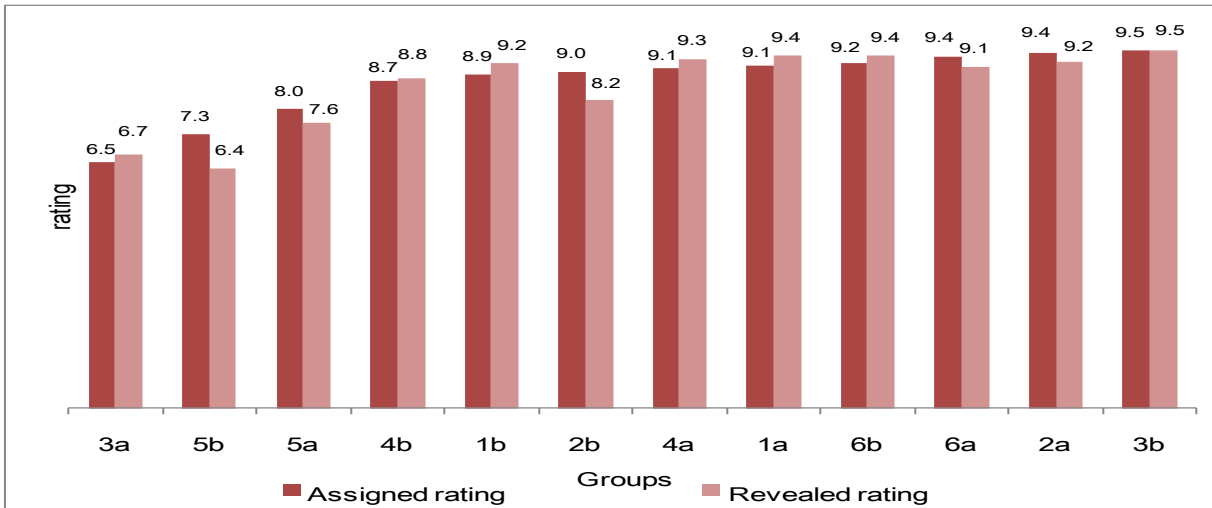


Fig. 6. Perception of collective work. Average ratings per group.

Group 4b (comprised of two women and three men aged 35 to 65, two MAs, two PhDs with ABD status and a female student with PhD) reported problems with task understanding and agreement compliance. Four students had a pluridisciplinary academic background and one reported having a monodisciplinary academic background. As a whole, the group had studies in 9 different disciplines (Social Anthropology, Teaching for Middle School and Higher Education, Latin American Literature, Romance Studies, Chemical Engineering, Pedagogy, History, Journalism and Communication). As opposed to groups 3a and 5b, in this team the member with the highest academic level was not the most senior team member. This could have influenced his failure to exercise leadership. In any case, this individual was able to contain the recurrent attempt of the second most senior team member (aged 50) with a high academic degree (PhD candidate) from defining the work guidelines. In spite of the dissatisfaction expressed in the evaluation by one of the younger female students and the student with the lowest academic level, this containment prevented the group from experiencing a rift.

The fact that age as a factor for leading group dynamics becomes diluted when it is not accompanied by a higher academic level than other group members was confirmed in group 1b comprised of three women and two men between the ages of 26 and 61 (one BA, one MA and three MAs with ABD status). The relative homogeneity of the remaining group members regarding age (from 26 to 35) and academic level promoted the integration of all the students with a collaborative style focused on dialogue and agreement compliance. The group nonetheless showed heterogeneity in relation to the members' academic backgrounds (three members had a pluridisciplinary academic background, two had a monodisciplinary background). The group as a whole had studies in 8 different disciplines: Industrial Engineering, Educational Planning, Physics, Sociology, Industrial Design, Social Work, Accounting and Fiscal Law). In this group, cognitive conflict was expressed more emphatically in the opinions of the female student with studies in Physics who rated group process with a lower

score since she felt uncomfortable with “ideological positions” and demanded greater precision in methodological issues.

A similar process was observed in group 2b in which although the most senior team member (aged 54) also held the highest academic level (PhD), the group experienced a more horizontal participation process in view of the group’s more pronounced homogeneity. The group was comprised of three women and three men between 30 and 54 (two MAs, three PhDs with ABD status and one PhD). The six team members had a pluridisciplinary academic background. As a whole, the group had studies in 13 different disciplines (Graphic Design, Art, Industrial Engineering, Sustainable Development, Biomedical Sciences, Sociology, Economics, International Economy, International Relations, Political Sciences, Geography and Urbanism). It is noteworthy that although this group reported disagreement regarding expectation compliance, as well as lower ratings (below 8 points) in cooperation, agreement compliance and commitment, it was able to present a project that reflected an intense process of dialogue, negotiation and collective construction of the proposal, which was embarked upon as a group task. This can in part be attributed to the fact that this group’s relative symmetry (both in age and academic level) was established on the basis of the students’ more consolidated academic background (most of whom had PhD studies).

Group 1a was comprised of two women and three men with ages ranging from 30 to 58. Although the age range is quite broad (28 years), a relative homogeneity was observed as far as academic background is concerned. All group members -as researchers- had postgraduate studies (three MAs with ABD status and two PhDs with ABD status). This favored their perception as peers. Although this group was also heterogeneous, since it had four students with a pluridisciplinary academic background and one with a monodisciplinary academic background, they all shared the fact that they came from social science programs. As a whole, the group had studies in 8 different disciplines: Psychology, Anthropology, International Relations, Pedagogy, Communication, Development Management, Political Sciences and Sociology. This allowed them to deal with cognitive conflict through a common epistemic commitment around Pierre Bourdieu’s theoretical framework with a task-focused collaborative style.

Groups 4a and 6a were the only groups in which all the members without exception assigned ratings higher than 8 to all items. These ratings, however, were not on average the highest of the series. Although group 4a, comprised of four women and three men with ages ranging from 27 to 45, had more members than any of the other teams, it had a more homogeneous profile in the students’ academic background, with a concentration in MA studies (one BA, three MAs with ABD status and three MAs). In this group, the students treated each other like peers, which enabled more open and direct communication, reinforced by intense use of a website. Like group 1a, this team was comprised of students with studies in social sciences and the humanities: five had a pluridisciplinary academic background and two had a monodisciplinary academic background. As a whole, the group had studies in 11 different disciplines (Psychology, Psychoanalysis, History, International Relations, Pedagogy, Communication, Graphic Communication, Visual Arts, Political Sciences, Sociology and Philosophy). Despite this affinity, group process ratings revealed the existence of disagreements, as well as two cases of expectations that were not fully met. These were received with “willingness to listen,” acceptance of criticism, “leaving the ego aside,” and focus on reaching workshop goals, which brought them closer to an effective exchange of knowledge.

Group 6a, comprised of four women and two men, with ages ranging from 27 to 62, had a similar profile to group 2b. Although this group had two members with a BA (one of whom was the most senior group member), it included a PhD and three PhDs with ABD status. This enabled horizontal participation. In this group, three people had a pluridisciplinary academic background, and the other three had a monodisciplinary background. As a whole, the group had studies in 8 different disciplines (Psychology, Geography, Graphic Design, Visual Arts, Architecture, Urban Design and the Environment, Chemistry and Political Sciences). Although in this group, discrepancy was noted in group process ratings since none of the different items received the same score, its members achieved greater cohesion by agreeing to reorient the task’s objective in such a way that instead of

designing a proposal for a research project, they presented an essay that nonetheless contained a reflection on the proposal's construction process as well as arguments to concentrate on the first phase of the proposal design regarding research question formulation. This group established an open dialogue and proposed that agreement compliance was proof of reciprocal trust. This team adopted a process-oriented collaborative style.

Groups 2a, 3b and 6b comprised a third block since they registered the highest average ratings in the series in spite of the fact that in all the cases at least one of the members gave a low rating which was either assigned, revealed or both. Group 6b, comprised of two women and three men with ages ranging from 24 to 53, presented a polarized profile in terms of their ages. Their academic background, however, was heterogeneous since the group was comprised by two BAs, two MAs with ABD status and one PhD; four group members had a pluridisciplinary academic background, and one had a monodisciplinary academic background (one of the individuals with a BA was studying two degrees simultaneously). As far as fields of study are concerned, the group comprised 10 different disciplines (Psychology, Educational Research, Biology, Basic Biomedical Research; Geography, Philosophy, Social Work, Political Sciences and Public Administration, Pedagogy and Latin American Studies). In spite of the high ratings group process received, one of the youngest individuals with a lower academic level gave a rating of 7.3, expressing dissatisfaction with expectation compliance. Likewise, a lower score was noted in task understanding. This group decided to dismiss addressing concrete issues and developed a theoretical project on the search for alternatives to the rationale of the neoliberal model, thus diffusing cognitive conflict.

Group 2a, comprised of three women and three men with ages ranging from 43 to 59, presented relative homogeneity not only in terms of team member ages (all above 40) but also in academic level, since the majority had a PhD degree (one MA, one PhD with ABD status and four PhDs). The group's heterogeneity was seen in the members' broad spectrum of academic backgrounds: with five members with a pluridisciplinary academic background, and one with a monodisciplinary academic background, as a whole, the group had studies in 11 different disciplines (Social Work, Anthropology, International Relations, Pedagogy, Philosophy, Philosophy of Science, Physics, Language and Literature, Communication, Political Sciences and Sociology). In spite of the group's relative socio-academic symmetry, there was one case of self-marginalization (accompanied by proof of participation in work commissions) by one of the group members with a PhD who systematically resisted the group's agreements, overvaluing his own ideas and appealing to the principle of authority. This group member gave low ratings to all the aspects regarding group process and considered that his expectations had not been fully met. Although agreement compliance was one of the items that received a higher evaluation, a lower score was given to the way in which agreements were established, which can be interpreted as a serious interest in fulfilling the workshop's achievement criterion, where all group members assumed a serious commitment, as was shown by the highest score given to this topic. This demonstrates a collaborative style focused on both results and prestige.

Group 3b, comprised of three women and two men, presented relative polarization regarding both age and academic trajectory since one of the group members, aged 65, had two PhDs, and another one, aged 59, had one PhD with ABD status, whereas another PhD with ABD status and two MAs with ABD status were aged 28, 29 and 23, respectively. This team chose the theme in which the person with the highest academic level was an expert. This group member assumed a persuasive leadership that allowed them to contain polemical stances in spite of the members' broad spectrum of academic backgrounds, all of whom had a pluridisciplinary academic background. As a whole, the group had studies in 13 different disciplines (Education, Hispanic Literature, Latin American Literature, Sociology, Social Sciences, Agricultural Education, Pedagogy, International Relations, Political and Social Studies, Social Anthropology, Latin American Studies, Medicine, Social Medicine and Epidemiology). The fact that the average revealed rating of one of the MA's with ABD status was 7.9 points shows that it is likely that concessions were made in this group regarding the course the task was to follow, without being fully convinced.

4. Conclusion

The study results confirm that the collaborative style in the multidisciplinary groups of the aforementioned teaching program on interdisciplinary research education is in part due to its members' socio-academic profile regarding age, academic background and academic level. In general, the groups with relative homogeneity in both member age and academic level, establish a peer relationship that allows group members to deal with cognitive conflict with a certain openness, free of inhibitions or resistance, and with a greater willingness to make intense negotiation efforts in order to fulfill a task through effective collective learning. The various teamwork experiences reveal that symmetrical relationships were also established with other profiles. Hierarchical features regarding age, academic level and/or professional trajectory were mitigated in view of the concentration of team members with relatively affinity in their socio-academic profiles. In any case, the lack of counterweights aggravated the tension triggered by cognitive conflict. This was a cause of ruptures. The evaluation tool applied in this study has been useful to characterize strategies followed by multidisciplinary groups in order to deal with cognitive conflict within the group dynamics on behalf of complying with the task of formulating a proposal for an interdisciplinary research project. The results of the group's self-evaluation of its teamwork led to identifying three forms of responding to the demand for intense discussion to articulate various visions germane to interdisciplinary research: 1) the lower ratings corresponded to the strategy of seeking certain preeminence in groups with a polarized socio-academic profile, which aggravated cognitive conflict leading to a rupture through self-marginalization; 2) the series' highest ratings revealed a strategy to reach agreements in which harmonious agreement is privileged, thus dissolving conflicts (this strategy was also followed by the groups with lower ratings, but did not lead to rupture); and 3) the intermediate but positive ratings coincided with the strategy of establishing an open dialogue with intense negotiations in order to reach agreements, thus seeking to overcome differences. According with the characterization in an earlier work (Blazquez, García and Villa, 2012), strategy 1 focuses on *the result* (obtaining the diploma) and *prestige*, (an interest in showing academic reliability at the cost of the group's learning); strategy 2 is also geared by *harmonious agreement* (an attempt to avoid conflict) and by *the objective* (task compliance). Strategy 3 focuses on *the process* that allows the proposal to be constructed collectively. As opposed to the first two strategies, strategy 3 is not established as a consequence of individual achievement. In the light of this new study, methodological guidelines regarding group dynamics may emerge so that regardless of the multidisciplinary groups' socio-academic profile, symmetrical relationships can be achieved between group members, emphasizing on the collective construction of the proposal. The latter justifies a revision of the achievement criteria of the academic process oriented to the acquisition of knowledge integration and collaboration skills. In view of the uncertainty of presenting an interdisciplinary research project dealing with cognitive conflict through intense knowledge exchange and arduous negotiations, it is necessary that the project be perceived as a pathway to reach group learning, rather than as an end in itself.

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Progress in teaching pediatrics at Faculty of Medicine and Dentistry Palacky University Olomouc

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Abstract

At Paediatric clinic – Faculty of Medicine and Dentistry Palacky University Olomouc many innovations in the education of future physicians were made in recent years. In this work, we follow up the achieved progresses and their contribution to additional use of graduates of the Faculty of Medicine. We managed to reach many changes in the study curriculum, in which is considerably more interconnected theoretical component with practical one. This fact is bringing more possibilities for students to work with patients themselves. In our work we try to educate students in terms of evidence based medicine and using e-learning education, multimedial virtual case studies and also trainers that faithfully simulate working with a real child patients.

Keywords: Paediatric, teaching, evidence based medicine, e-learning

1. INTRODUCTION

The Paediatric clinic of the University Hospital in Olomouc under the patronage of the Faculty of Medicine, Palacky University has been in the long run a respected clinical and educational department with long-lasting education of Czech as well as foreign students. Education in this department has been assessed very positively and some of our students become members of the clinic after graduation. Most students encounter the issue of caring for a sick child for the first time; therefore, this area must be addressed in an attractive and modern form, the significance of work with children must be emphasised and the students must be adequately motivated.

Thanks to new educational opportunities the teaching of paediatrics at the Faculty of Medicine, Palacky University, Olomouc has been improved and innovated. The new aspects of student education aim to establish closer links between theoretical and practical knowledge of the students.

The courses previously provided in our department were beneficial to students but were limited to a large extent by the theoretical level and did not allow sufficient development of students' skills and did not include work with patients.

Courses in paediatrics are carried out in four-week blocks. Students are divided into study groups of about twenty. This teaching block is a part of the fifth year of general medicine, i.e. after completion of most clinical subjects and after completion of all theoretical subjects.

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The courses are carried out on a theoretical as well as practical level. During the first three weeks of the training, students have two theoretical lectures during the day livened up by an interactive session and also take a three-hour practical bedside training, during which they take care of patients in bed under supervision of attending physicians. Students also undergo training in a general outpatient department and specialized outpatient departments. During the last week students take only bedside training. Each day, students independently take care of child patients, propose diagnostic procedures and treatment. All findings are consulted with the physicians in the department. The course also includes radiological seminars, during which interesting imaging results are presented.

2. EVIDENCE BASED MEDICINE

The first innovation is that students are involved in education in the form of evidence based medicine. In practice this approach means that each study group is divided into pairs and, in the initial days of the training, each pair is assigned a real patient to take care of. At first, students study any available patient materials. After that, subject to parental consent, they take medical history from the patient and his/her parents. The child is examined under supervision of an attending physician. After that students are assigned a clinical question, which is analysed using recent literary sources. To facilitate the analysis of clinical questions, during the initial lecture students are introduced with available medical search engines and their use. Clinical questions are addressed by students using the PICO format.

P – Patient

I – Intervention

C – Comparison

O – Outcome

Students are assisted by their lecturers and the librarian of the Library of the Faculty of Medicine, Palacky University, who advises on searching for literary sources. Students present their findings to all their colleagues under supervision of their lecturers in the form of casuistic reports at a small conference, which is part of the state exam. This type of teaching is very beneficial in terms of referring to possibilities that evidence based approaches bring in addressing complex and ambiguous medical cases.

3. MODEL CHILD PATIENT

Another innovation is the use of a SIM junior dummy serving as a model child patient on which students can train practical skills. During practical sessions, students use the dummy to insert peripheral venous cannulas and central venous catheters. The dummy also allows students to practice resuscitation and is provided with a screen displaying current parameters of basic vital functions, such as ECG curve, internal environment parameters, blood pressure, pulse, temperature and saturation. In almost real conditions, students can practice various medical situations including those requiring patient intubation and artificial lung ventilation. Students appreciate these training opportunities because there are no other ways to practice these situations throughout the course of their study although these are life-saving actions that every physician should be able to perform.

4. E-LEARNING

The course also includes a new multimedia platform, which allows student self-testing and care for a virtual patient who comes to the hospital and whose diagnosis must be made and therapy started. The multimedia platform is also provided with a theoretical level, which provides the results of self-testing, displays any mistakes and appropriate procedures, students are briefly advised on relevant theory and available literature.

There were many reasons to create such system and select suitable patients who would be useful for educational purposes of medical students.

The first reason was theoretical work with literature based on which the issues in question were addressed. This subsequently became an inspiration for further collection of data and information and further study of scientific literature and internet-based sources. The crucial part however was field work. Field-based data collection was an inseparable part of the process. We further continued with searching for and selecting suitable child patients hospitalized in our educational and therapeutic department. New findings were consulted with experts in relevant medical fields. Selected patients and the course of their treatment were then presented in the form of case studies and comprehensive lectures at various conferences nationwide. We must not omit presentations in special meetings aimed at the aspects of the project, whose main focus was the attitude to a sick child; however, the view of a sick child was not limited to medical aspects, very important appeared to be the suitability of including child patients into our project. A child patient had to be sufficiently 'easy to understand' and educative, we aimed to select patients with an 'added value', i.e. whether findings and information about the patient learned from medical records, outpatient cards, laboratory databases, radiological descriptions were sufficiently beneficial and useful in student education. All activities were based on a principle that the essence of a teaching material must be fulfilled. Therefore, selected case studies are provided with photo documentation and videos. These images and video files are implemented directly in the teaching material. We believe that by incorporating pictures and videos students are provided with a real picture of the course of an illness.

The next step was the development of the multimedia study platform, which was built on comprehensive and quality analyses, contents and source documents of individual case studies during the first key activity.

The development of the platform is performed by a specially designed and developed content management system. All findings, information and documents are continuously uploaded through the content management system, considerable attention is paid to updating.

Any prepared text is divided precisely according to the structure of the computer system.

The study platform consists of several parts.

The first – information part – is based exclusively on medical history. This part deals with medical history data and provides students with significant findings about the patient. Medical history data is divided into several parts reflecting the real examination approach of taking medical history of a real patient. The first section is current illness. The current illness section provides students with important data on patients' reasons for entering a hospital facility. The next section deals with personal patient medical history. Personal medical history includes information about the length and course of birth, information about past illness and, naturally, emphasis is put on the child's development. The next section of taking medical history is social medical history, which focuses on the child's standard of living. From the family medical history a physician learns about serious illness in the closest family; students find this information in the study platform. The next section of taking medical history is associated with medication – this is pharmacological medical history providing information about medication taken by the patient together with dosage. Allergy medical history provides students with information about the

patient's allergies. Epidemiological medical history informs about the patient's contact with infectious illness and journeys abroad. Gynaecological medical history provides information about maturation, menstruation, menstruation disorders and pregnancy.

The second information part of the study platform is the status somaticus. Here, students gain information about physical reports in child patients. For greater clarity and illustration, some typical reports are accompanied by pictures or videos. After studying information available from medical history data and physical reports, students should be able to make a picture of the source of the patient's difficulties and be able to prepare a differential diagnosis and decide on possible hospitalization of the patient and determine the urgency of the situation. This decision making process is dealt with by a different part of the programme, in which students decide on the selection of an appropriate therapeutic and diagnostic procedure in a specific patient case. Based on available information students indicate specific examinations required for diagnosis and treatment and assess the results of these examinations. In this part a large number of laboratory results, radiological analyses and other specialized examinations had to be uploaded to specific case studies in the multimedia platform to allow students an independent selection from a wide range of examinations divided into subgroups. The core task and aim of this section is to educate students, who should be able to indicate and decide on a specific examination. The programme offers possible diagnoses and treatment approaches, always giving reasons behind correct or incorrect selections. Based on available information, students select from 5 to 10 possible diagnoses. According to a specific diagnose, the therapeutic part offers 5 to 10 possible treatment approaches.

When testing is completed students are informed about the results of their case studies and provided with a commentary on mistakes and correct answers, a part of the commentary focuses on what should have been examined but was not. Finally, the system shows a theoretical part with a theoretical summary of the diagnosis with available literary sources.

Prior to uploading to the system, individual case studies were analysed because feedback provided by students using the programme is of vital importance. Feedback was used to improve individual case studies and remove or correct any deficiencies or unclear issues.

Currently the computer programme includes over 150 completed case studies from various paediatric areas: cardiology, intensive care medicine, allergology, surgery, neonatology, nephrology, endocrinology, gastroenterology, pulmonology, rheumatology and haematology.

The web pages of the multimedia platform are available at www.pedkaz.cz.

A positive result of our work is definitely the increasing interest of students in the education programme, even from other Faculties of Medicine in the Czech Republic and Slovakia.

The latest innovation at the Children's Clinic of the Faculty of Medicine, Palacky University is the electronic textbook, which has currently over forty chapters on various paediatric areas and is being further extended. The team of authors focuses on the most significant issues for students of medicine but also on topical knowledge and recent information, not always included in available Czech textbooks. The textbook is available at <http://nova.pediatric.upol.cz/web/flipviewerxpress.html>. Undoubtedly the greatest advantage of the publication is the possibility of online editing in case of new findings in the area.

5. CONCLUSION

The aim of the innovations is to link them together and develop a 'virtual paediatric hospital' concept that would gradually combine all available e-learning models and provide students with top quality education limited only by internet access. At the same time this will not be a mere learning text. These innovations brought also improvement into teaching itself. The academic teachers are more flexible and even their knowledge increases. According to students this view of education is very beneficial and they welcome these changes.

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Project-based learning modeling language

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Abstract

The evolution of ICT promotes researchers in e-learning to integrate in the author system, the ability to design custom learning paths, tailored to the needs of users in e-learning platforms. The scenario of learning activities is one of techniques available to teachers, in order to customise and to adapt learning paths. The authors of educational scenarios can choose from several educational approaches, which change the learning environment.

Our case study is based on project-based learning, as a method of collaborative work of a group.

In this educational framework, a scenarisation of collaborative learning activities in the context of group work presents several challenges for researchers. The Modelling languages of learning scenarios such as EML (Educational modelling language) are criticized by their abstraction and their difficulty to be used by teachers.

To avoid these constraints, we propose in this paper a meta- model that will describe a modelling language.

The modelling language is used as an author tool, to formalise an activities scenario in online educational project. Our meta-modelling approach is based on the notion of process, and the implementation of the Framework of activity theory.

To illustrate our proposal, we have implemented the evaluation process, as instantiation of the proposed meta-model.

The assessment process during a project requires points of decision making. The decision is addressed through the hierarchical analysis method (AHP).

Keywords: project-based learning; activity theory, process, learning scenario, meta-model, assessment, AHP;

1. Introduction

The technological development has emerged new forms of group work, particularly in the field of distance education (e-learning). E-learning has seen many changes, and has improved teaching conditions, even with

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temporal and spatial constraints. Most learning platforms are interested in management of educational content, rather than the process of distance education. This limitation is emphasised in a social constructivist pedagogy, which promotes group work and sharing of knowledge, like in a project-pedagogy.

This pedagogy is characterized by a social and collective nature (Louise), which promotes the negotiation, the critical of others, the group work, and the collaborative learning. All Those characteristics arouse a division of labour, and planning tasks, in agreement with the project actors, leading an affective investment and a motivation (Capra & Arpin, 2002). Therefore, the project is considered a collaborative learning process in terms of stages, and activities structured and unstructured, defined by the tutor.

The existing EML modelling languages (Koper, 2002) do not respond to the inherent characteristics of this current educational. The EML languages are criticized for complexity, abstraction, and generality, for a course designer. Hence, the idea is to model the learning process, using a language dedicated to the project approach.

Our proposal is based on the modelling of a learning process based on the UML meta-model.

The meta-model describes two different types of processes, the structured and unstructured in a work group (selmin Nurcan, 1998).

Furthermore, we introduce decision points in our meta-model to deal with the problem of decision-making individual and in group. Several methods treat the decision-making by group, whose AHP method (Saaty, 1980), which structures the evaluation criteria by a hierarchical analysis.

In collaborative writing, students perform tasks in the group, which generates traces of activities, constituting the evaluation criteria. The evaluation criteria concern the deliverables during a project, like a report written in collaboration with the group members.

In this article we will discuss, a state of art of collaborative modelling languages (LDL, CPM, etc...), their advantages and disadvantages. The following section will be devoted to the activity theory, which forms the theoretical basis of our work, by a projection in a teaching project. In the fourth section, we discuss our proposal of meta-modelling the processes, and definition of domain concepts.

In the fifth section, we will illustrate the evaluation process, as an instance of meta-model of processes in a project. Then in the sixth section, we will apply the method of group decision-making in an evaluation process.

The final section will highlight the work in progress, and our main perspectives in the context of project-based learning.

2. A Study of modelling languages

Several research studies have been conducted in the field of modeling languages of collaborative activities. In this section we introduce different modelling languages in a collaborative learning environment, and we discover their limits in teaching project. Among these languages, there are CPM (P. Laforcade & T. Nodenot & C. Sallaberry, 2005), LDL (Martel & Vignollet & Ferraris, & David ,2006) and PoEML (Manuel Caeiro Rodríguez,2007):

- CPM (cooperative Problem Based learning Meta-model): CPM is a modelling language which aim the designing of cooperative situations problem-based. The CPM is a UML profile that expresses the learning scenarios. However, the CPM is specific to learning through problem, thus it's not generic to other learning situations. Therefore, the CPM has a weak reusability (EL Kechai, 2008) Villiot-Leclercq, 2007). Further,

CPM is for instructional designers who have mastered the UML formalism, which makes it difficult to handle by teachers.

- LDL (Learning Design Language): used to model collaborative activities, and express collaborative scenarios. The LDL is based on a meta-model defined for CSCW (Computer supported cooperative work), and an infrastructure to take charge of the operational scenarios: LDI (Learning Design Infrastructure). This language is based on a particular organizational paradigm called participation model (Martel,1998) . However, the LDL is difficult to handle for scenario of a learning situation, due to the concepts of LDL that are not adapted to the project, in addition to the very specific level of decomposition of the project. Therefore, the concepts of LDL are generic in regard to a project-based learning.
- PoEML (Perspective oriented EML) : This language is an EML organized into several packages according to a meta-model, which separates the modelling of learning units, based on perspectives, and identified aspects. The perspectives are used, for group the elements of the meta-model in subset of models, each with a specific role in the modelling (S.Ouari,2006). During a project, the PoEML language is difficult to implement, due to the project structure which does not allow the decomposition, according to the aspects and perspectives. The project has a predefined structure, and a specific decomposition.

In sum, the languages listed are either dedicated to specific learning situations (CPM), either difficult to handle by teachers (LDL), or does not support the sequential activities of the project (PoEML).

Our goal is to define a modeling language dedicated to project-based learning, and also treats the decision making.

3. The activity theory

The activity theory incorporates the concepts of intention (the goal), mediation (artefacts), and development (activities). It has experienced three generations of research.

The first was based on the work of Vygotsky and his concept of mediation (Engeström, Y, 1987). From empirical observations, Leontiev (Leontiev, 1978) has structured activity as a set of conscious actions, which themselves consist of a set of operations.

The activity consists of a subject, and an object (in the sense of purpose, it can be physical or mental), which is managed through a process of transformation to get the result (the transformation process is the purpose of the activity). The activity is mediated by physical tools, or cognitive (symbols, language, gestures).

Engeström (Engeström, Y, 1999) has continued the development of the theory by introducing the notions of community (the environment in which the activity takes place), the rules (the constraints governing the exercise of the activity involve the social aspect) and the division of labor (Organization adopted by the community to perform the activity: the distribution of roles, the powers and the other organizational mechanisms).

In this perspective, we have applied the theory of the activity of the second generation to our pedagogical approach. As shown in Fig 1, the components of the Framework are:

- Subject: learner, group of learners.
- Artefacts of the project: educational resources (documents, courses, modules, etc.), technological tools (software, LMS platform, portfolio), cognitive tools (critical thinking, decision making, assessment), and social strategies (group work).
- Rules: meeting hours, planning of tasks, deadlines.
- Division of labour: distribution of roles (tutors, assessors, assessed), and distribution of tasks for each role. The tutor is responsible for assisting, guiding, and facilitating tasks to learners, while learners have the task execution as mission, communication, and information sharing.
- Learning objectives: mastery of language, writing etc...

• **Outcome:** In a project the outcome relates to the product of a task, or a step or to the entire project. The product can take the shape of a report, oral presentation, or even of an application.

The application of the theory of activity is adapted to the different granularities of the project. It can be applied to the entire project, then to a particular step, and finally to a defined activity.

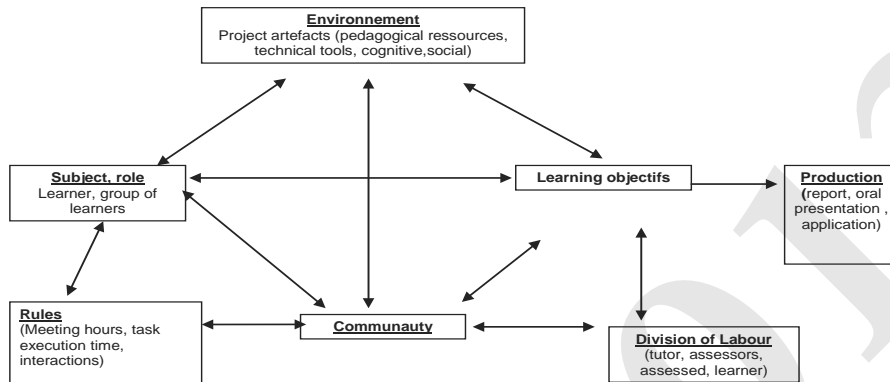


Fig. 1. Application of the 2nd generation of activity theory to a learning project

As shown in Figure 1, the tutor in accordance with the learners proceeds to the assigning roles and the division of tasks. The subject, plays role assigned by the tutor, and uses the project artefacts to carry out the learning objectives.

During the learning process, students perform tasks to achieve the goals, and they produce collaboratively reports and oral presentations. While the rules implemented concern the organization, such as the team formation, the meeting times, and the hours of collaborative work.

4. Meta-Model of learning in a pedagogical project

The working through project, is based on group cooperation, and been the subject of a field of research called computer-supported cooperative work (CSCW) (Grudin 1 Jonathan,1994).

The expansion of information technology and communications has shown up new modes of cooperation in professional and educational environment.

The keys of success in a work group, is dependent on the simplification and automation of the process, in order to ensure productivity and quality. In the context of the project, there are several modes of group work, synchronous or asynchronous, distributed or localized. The project group works on a common goal in a shared environment (Ellis, C.A. & Gibbs, S.J., 1994).

On one hand, the actors cooperate to carry out individual tasks in a time interval, and lead to an overall goal, on other hand, the other actors work together to achieve a common task in a shared environment.

There are two types of processes in project work (Mark de Boer & Simon Townsend ,2012): structured and unstructured processes.

The structured process or workflow (OVUM,1991) is a well-defined process, consisting of repetitive procedures performed via a set of predefined tasks, sequenced and coordinated between actors. Each task is implemented by actor with a corresponding role. The actor, who runs the task at a given time, is selected from this group.

The unstructured or ad hoc processes such as groupware (Ellis & Gibbs & Rein, 1991) are occasional processes, which supporting the unpredictable interactions of actors in a group project, during a collaborative work. The order and the exact time of performing tasks are not pre-established in the unstructured processes, and can be changed at runtime. Such processes are characterized by the sharing of information and knowledge.

As part of our research, we propose a meta-model of learning processes in a pedagogical project, in accordance with standards WFMC (consortium standard workflows).

The learning scenarios according to a learning situation, individual, cooperative, and collaborative, are an instance of the meta-model defined.

As shown in Fig.1, we define the package of our meta-model: organization, environment, interaction, subject, and objective.

4.1 The subject package

This package of discusses the organization of group in a project. We cite three main actors of project-based learning: teacher, tutor, and learner.

- Teacher: is the instructional designer of the activity of learning, and defines the specifications together with the learners.

- Learner: is part of a group of learners. The group members are distributed in space, and interact in different times, through project. The learner gains new knowledge and develops new skills.

- Tutor: its role is to follow the individual learning activities and group, to assist learners, and ensure the sharing of workspace. A tutor is qualified as controller, facilitator, and consultant.

- Role: A role is a concept that defines organizational intentions, shared by actors, according to the objectives. We define two types of roles: individual role, and group role which is composed of several individual roles. The individual role performs individual task, while collaborative task is performed by group role.

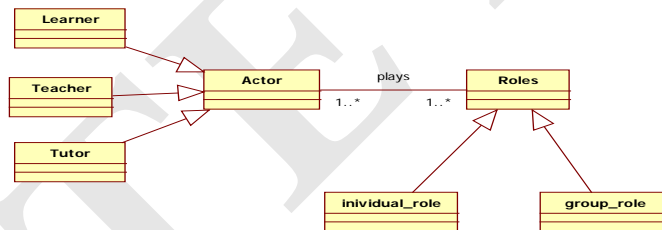


Fig 2. The organization package

4.2 The environnement package

This package handle the environmental aspect of the project, including artefacts, tools used in the project activity.

There are different kinds of resources such as:

- Tools: means the software, the platforms, and the software agents.
- Information: contents and exercises.
- Social: group work, collaborative work.
- Cognitive: critical thinking, decision making.

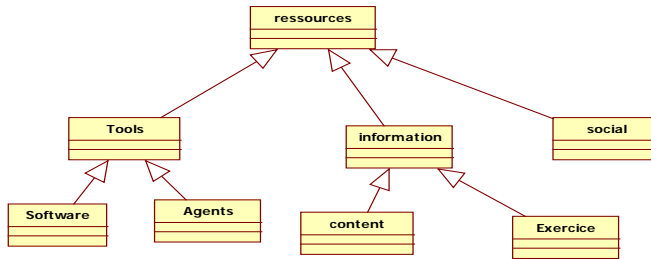


Fig 3. The environnement package

4.3 The control package

This control package concerns the flow control in a structured process. The collaborative interactions require the use of operators that control the flow, and operators in the tools.

The operators defined in package, have a sequential nature, parallel, and alternative. The sequential operator defines the steps, activities, and tasks sequentially in a structured process.

The operators and-join, and-split, are used to define a parallel flow (synchronization).

The Or-split and join-split, define alternative flows, depending on the parameters of conditions (deadline, the value of the response, etc...).

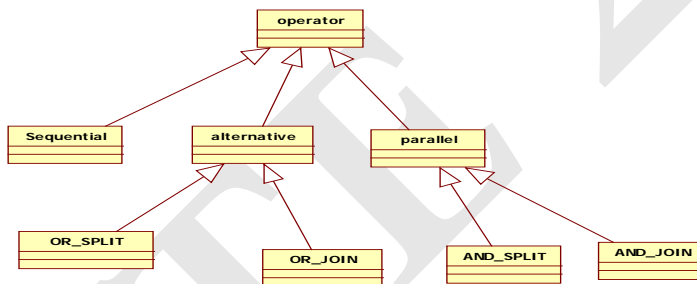


Fig 4. The interaction package

4.4 The functional package

This package describes the process of composition, in terms of types of processes, activities and tasks.

The process in a project has a disciplinary nature or transversal, in adequacy with the learning objectives.

The transversal processes are spread out throughout the life of the project, such as the evaluation process, communication, writing etc. Each step is composed of process, linked to decision points at runtime.

The decision is taken , during the runtime, by triggering an action in consequence of the learners interaction.

The role concept, takes an individual or collaborative decisions, in a step, at activity level and tasks. Processes are composed of sub-processes, structured and unstructured. Structured process consists of steps, ordered and coordinated.

So, the structured processes are modelled through workflows, defined by an ordered set of steps and activities, submitted for a flow control by the operators (sequential, parallel, alternative).

As an illustration, the planning of work prepared by the tutor is seen as a process, which can be decomposed into sub-processes.

While the unstructured processes, are executed in unpredictable ways by roles, using environmental resources (selmin. N,1998).

The main objective of unstructured process is the sharing of knowledge and information in a workgroup.

The part of the meta-model, which illustrates the functional package, is described below.

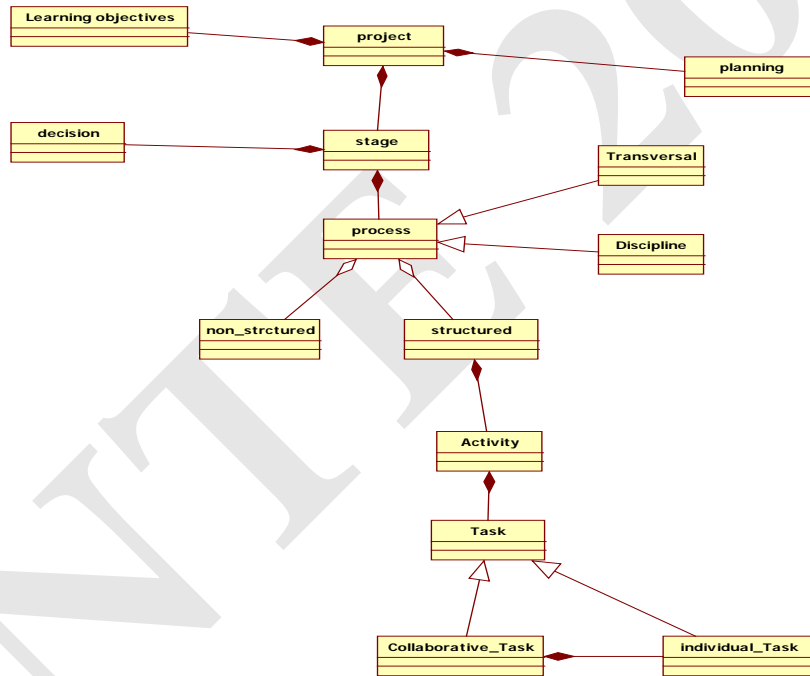


Fig 5. The functional package

4.5 The traceability package

The tracking package (Fig 6) provides indicators used to make decisions, and to produce feedback for learners.

The tutors manipulate indicators in order to regulate, assist and facilitate the learning process (Benjeloun & Faddouli & Khalidi & Bennani , 2012). The indicators can be from different levels in accordance with the

theory of activity (Leontiev,1978). Based on our analysis, we have indicators at the project level, composed of indicators at process level.

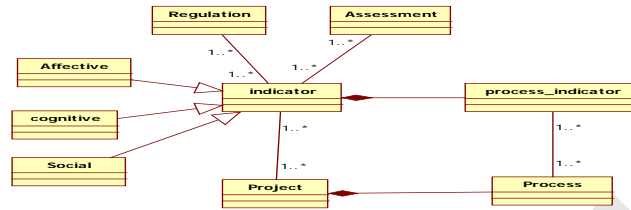


Fig 6. The traceability package

4.6 The meta-model of project-based learning language:

The aspect of meta-model is shown in fig.7, consisting of five packages, according to the theory of activity.

The organizational package describes the organization of project actors, and the roles played during runtime.

The functional package expresses the structure of the project, in stages and processes, which correspond to the levels of activity theory.

The interaction package corresponds to the control during a workflow in a structured activity.

The environment package illustrates the artefacts, and tools used in a project.

We added the traceability package to the meta-model, structured according to the hierarchy of three levels of activity theory.

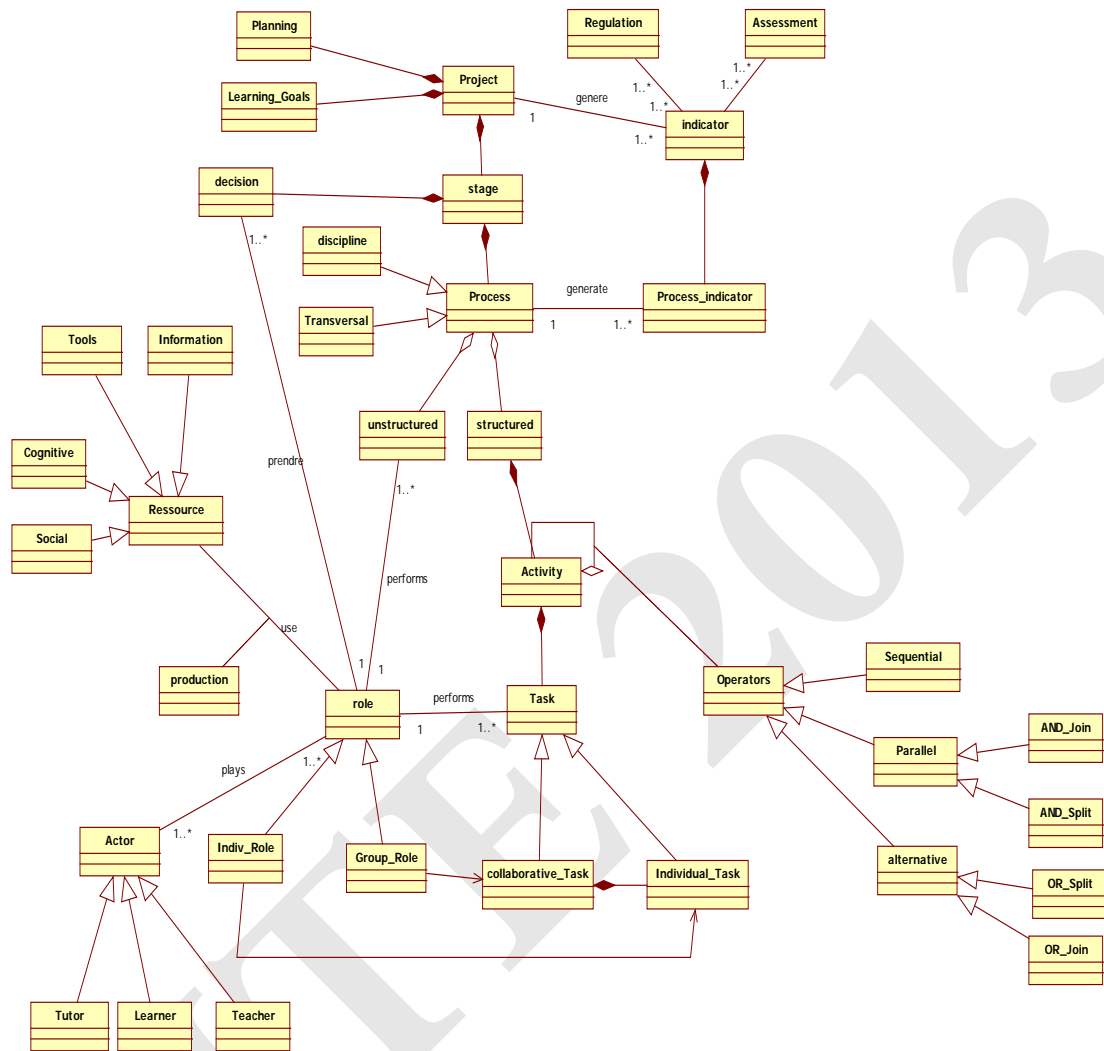


Fig 7. The meta-model of the project-based learning

5. Case study: the evaluation process in a pedagogic project

The assessments in a project consist, to compare the project objectives with learning outcomes.

Thus, in a project, the assessment takes many forms, such as inter-group evaluation, intra-group, self-evaluation, and evaluation by the tutor.

The evaluation process has a transversal nature, and composed of several sub-processes, structured and unstructured.

5.1 The evaluation process in a pedagogical project

The evaluation process (Fig. 8) in the context of learning, has a transversal nature, spread throughout the project.

This process consists of two sub-processes of peer-assessment, and self-assessment.

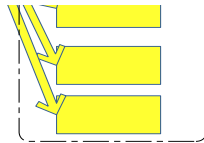


Fig.8 The assessment process in a project

- The self-assessment sub-process: The self-assessment in process consists in assessing the learners by them-selves. This sub-process is modelled by a workflow (Fig.9). At the beginning of the project, the tutor starts a prerequisite test of the group learners. The learner carries out the test individually, and then they send the test to the tutor. The tutor collects the results, and implements a learner profile, then stores these results in a learner model. This classification of learner profiles, allows a comparison of the test results, and the referential of learning. Then a self-assessment test is set up, as tool for learners during the project. These self-assessment tests cover all levels of granularity of the project (process, activity ...). Thus, in a stage of the project, the tutor assigns a cooperative activity to a group of learners. The cooperative activities are considered as a sub-process which composed of parallel individual activities. These activities form of tasks assigned to students. After completed the tasks, learners respond to a self-assessment test, which emphasises on the path of learning during the project. Following a comparison with the referential, implemented at the beginning of the project, the system takes a decision by the AHP method to guide the routing of the learning activities. The system guides the student towards an alternative activity, or moves to the next activity.

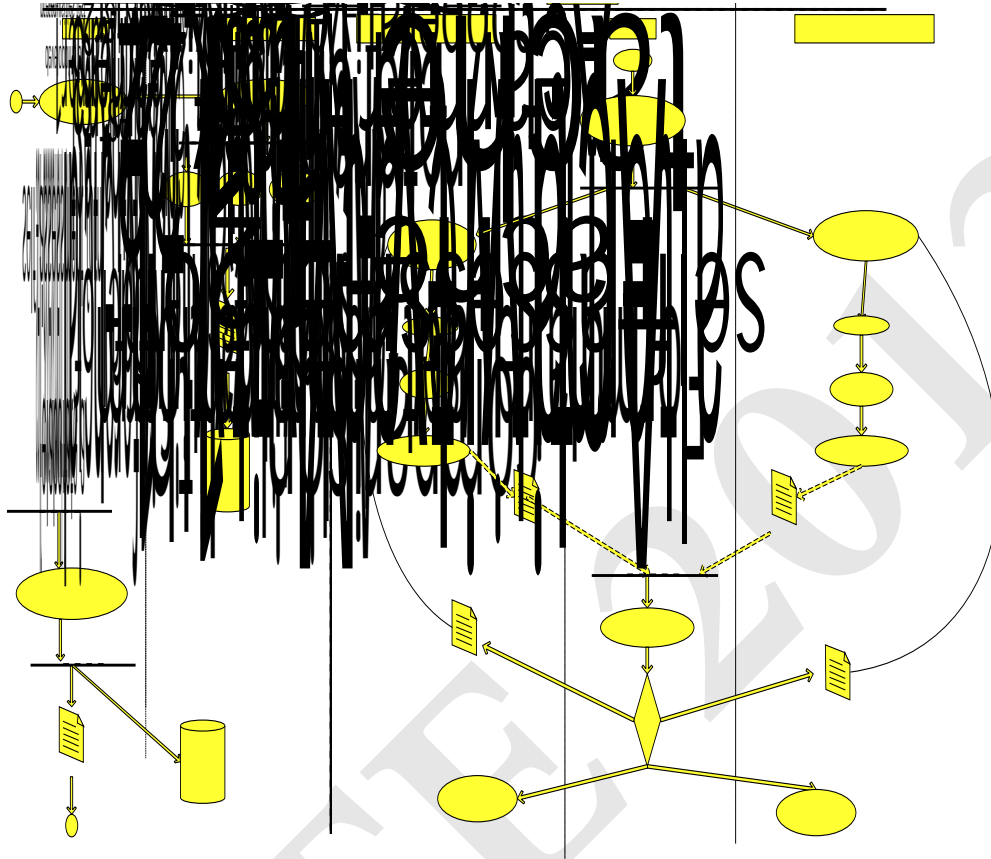


Fig 9. The self-assessment sub-process

- The peer-assessment sub-process: when learning by project, group members perform a cooperative task, and will be a subject of formative evaluation throughout a step, by a group of assessor which will continue the next step, such an operation is called inter-group assessment (Fig.10). The assessor group will be also assessed by another assessors group, which will continue the project. Members of the assessor group perform the assessment rubric of the assessed group, and then they assemble the results into a single form. This activity is done by mutual agreement between the members through a discussion and negotiation (unstructured process). The feedback will then be sent to the assessed group, for a review and necessary corrections. After receiving the feedback, a discussion (unstructured process) is initiated to measure the weaknesses of cooperative work and undertake the necessary corrections. The evaluation of cooperative work will be done by peers, who will evaluate the work of colleagues in an intra-group evaluation. In this case, each member will review the work of his colleagues, and will give his assessments in the rubric of intra-group evaluation. These appreciations will be used to review individual activities, by each group member. Each member takes a decision in function of the values assigned to the evaluation criteria in the peer evaluation form. The member of the group assessed, proceeds to a correction of its task, or sends his individual work to the group, after corrections. Consequently, the group performs a new

collaborative activity, and sends the outcome for a new inter-group reassessment. This step can be repeated as long as there are reviews from the assessor group. If the assessed group, is satisfied with his work, he takes a decision not to send the work for inter-group evaluation, but it will be submitted to the tutor assessment. At this level, the tutor will evaluate in turn, and assign a note at work. The final grade will be a combination between the tutor score, and the assessor group score. The decision in the case of inter-group evaluation or intra-group will be conducted by the AHP method.



Fig 10. The peer assessment sub-process

6. The decision-making process in the evaluation of a project

In this section, we present the process of decision making, during an assessment of a project.

When a decision is making, many interests are involved, which generates a set of criteria supported to achieve a goal. The process of decision-making is based on a set of methods (AHP, ELECTRE...). In our case we chose the AHP method (Saaty, 1980), for decision making. The AHP method is characterized by hierarchical analysis of evaluation criteria, such as indicators.

During a project, groups of students are asked to make choices in the evaluation process, either individually or in group.

6.1 The AHP process in the evaluation a pedagogical project:

The evaluation during project relates to several types of collaborative activities.

In our case study we will be limited to written reports. At each step i of the project, the group delivers a collaborative report written, for an evaluation by the group that will perform the step $i + 1$.

The assessment of the written report will be made through evaluation forms at the end of each stage of the project. Evaluation forms are of two types: form inter-group evaluation and intra-group.

When a group evaluates another, the assessor group fills the inter-group evaluation form, and responds to evaluation criteria of the group assessed. While the intra-group evaluation forms, are filled by members of the same group, who answers to the individual criteria of assessment.

When writing the report, learners use the transversal skills, (spelling, grammar, semantics etc ...), and discipline skills (related to the field of the project).so the collaborative writing is characterized by three aspects: the group's production, the writing process, and the individual and collective skills (Neomy storch, 2005).

Concerning the evaluation of the group's production, the written text is analyzed to measure the syntax, grammar, and semantics.

We define the writing process through three phases: planning, writing and review. During the planning phase, students read the instructions of the tutor generate new ideas and discuss the lexical and grammatical choices. Then learners pass to the writing phase to structure ideas, and interpret the tables and the graphs in format of written text. The contribution of learners during the writing phase generates new ideas (scaffolding) and builds a vocabulary, while co-constructing the written text.

The review phase is used to send feedback from learners to other, and to allow the structuring of ideas and the grammatical accuracy. In addition, the individual and collective skills are being tested during the collaborative writing, such as the attitude of the learners, and the level of the language used.

The three aspects of collaborative writing constitute the evaluation criteria of the written report. The form of inter-group evaluation includes assessment criteria of the group. The evaluation criteria are the indicators of the group listed in the Table 1.

According to Table 1, we note that there is a hierarchy of criteria, which will be organized by the AHP process, which will be detailed in the next section.

In Another strand, the intra-group assessment will be based on individual assessment criteria listed in Table 2.

In the same way, the evaluation criteria are structured according to the AHP process for intra group evaluation.

In next section, the forms of inter-group and intra-group evaluation, will be analyzed by the decision making process.

The group criteria	Process	Interpretation of tables and figures, that carry relevant information on the subject, in synthesized way.
		resources : learners are involved in the search for information by various means
		Structuring the essay: logical and organizing ideas
		Group members clarify the arguments, ideas, and conclusions.
		Checking references: cited in accordance with the Template Guide.
		The learners contribute to the development of the chosen concept, and to problem solving.
		Learners describe the theories, methodologies and procedures for implementation.
		Selection of resources related to the topic: resource quality, accessibility.
		Coherence of arguments
		Workload: distribution of workloads adequately between learners
	Written report	Spelling error
		Grammatical error
		Learners have achieved the objectives of the current stage of the project
		Learners contribute to the development of the chosen concept, and problem solving.
		Learners validate the results of the study project.
	skills	Group cohesion: the paragraphs are set homogeneously, and the links between the paragraphs are coherent and logical.
		attitude and team spirit
		Collective scaffolding: learners co-construct new knowledge and new ideas
		Quality of knowledge

Table 1. The group assessment criteria

Table 2. The assessment criteria of a learner

Individual criteria of a learner	Process	Look for resources: learners are engaged in seeking information in different ways.
		a learner fulfils a task adequately
		The learner contributes to the development of the chosen concept, and the problem solving.
		Learners describe the theories, methodologies and procedures implementation
		Selection of resources related to the topic: resource quality, accessibility.
		Time Management: perform the tasks within deadlines
	Product	Spelling error of the lexicon
		Grammatical error
		The vocabulary level employed by the learner.
		Quality of information and data clarified in the written text
	skills	assiduity and attendance at meetings
		Respect of deadlines
		Communication
		Reflexion: This criterion related to critical thinking, looking for consultancy, and explaining the ideas to the peers.
		Cooperation and contribution: number of messages sent, number of unread messages, number of received messages.

6.2 Decision making in inter-group assessment

A group is subject to a formative evaluation throughout a project stage (Fig. 10). The assessor group fills a form of inter-group evaluation, by answering the criteria of evaluation of assessed group. Following to the answers of assessor group, the assessed group (decision makers), will take a decision in group, either for to confirm the report or to return for a new assessment. The decision of the assessed group is based on AHP decision-making process detailed in Fig.11.

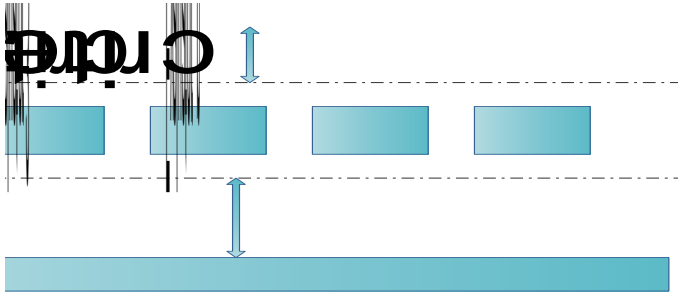


Fig. 11. Application of AHP decision making in inter-group assessment

Each member of the assessor group, fills the evaluation form by answering the inter-group evaluation criteria previously established (Table 3). Each assessed group member will receive the evaluation form.

Table 3. Evaluation form received by each member of the assessed group

criteria	criteria_1	criteria_2	criteria_3	criteria_4	criteria_n
évaluateur_1	Val11	Val12	Val13	Val14	Val15
évaluateur_2	Val21	Val22	Val23	Val24	Val25
évaluateur_3	Val31	Val32	Val33	Val34	Val35
évaluateur_4	Val41	Val42	Val43	Val44	Val45
évaluateur_n	Valn1	Valn2	Valn3	Valn4	Valn5

Each decision maker D_i (group member assessed), assigns values to the inter-group evaluation criteria, according to the importance attributed.

The values are used in the construction of comparison matrix, and are situated in the scale of Saaty (Saaty, 1980). Saaty's scale is a rating scale that includes values from 1 to 9.

Then we calculate the eigenvector starting from the comparison matrix of criteria (Table 4). This vector is composed of weight of the evaluation criteria.

Calculating the weight vector requires normalization of comparison matrix.

The elements are normalized by dividing by the sum of columns of the matrix of comparison (Table 5).

Table .4 comparison matrix of criteria

	criteria_1	criteria_2	criteria_3	criteria_4	criteria_n
criteria_1	1	a	b	c	d
criteria_2	1/a	1	e	f	g
criteria_3	1/b	1/c	1	h	i
criteria_4	1/c	1/f	1/h	1	j
criteria_n	1/d	1/g	1/i	1/j	1

Tab.5 The matrix of comparison normalised

	Criteria_1	Criteria_2	Criteria_3	Criteria_4	Criteria_n
Criteria_1	1	a	b	c	d
Criteria_2	1/a	1	e	f	g
Criteria_3	1/b	1/c	1	h	i
Criteria_4	1/c	1/f	1/h	1	j
Criteria_n	1/d	1/g	1/i	1/j	1
Sum of columns	$\sum Crtr_1$	$\sum Crtr_2$	$\sum Crtr_3$	$\sum Crtr_4$	$\sum Crtr_n$

The weight of criteria is determined by dividing the sum of a line by the number of criteria, see table 6 below.

Table.6 The eigenvector of the criteria

Criteria	VP_Ci
Criteria 1	$\sum Crtr_1 / n$
Criteria 2	$\sum Crtr_2 / n$
Criteria 3	$\sum Crtr_3 / n$
Criteria 4	$\sum Crtr_4 / n$
Criteria n	$\sum Crtr_n / n$

In the second step, the comparison matrixes of assessors are calculated with respect to each criteria.

Thus, for each criteria C_i , the decision maker assigns values to different alternatives of the assessors (criteria values). Then we establish a comparison matrix, of the different values assigned in the evaluation forms by the assessors, so the vector of priorities $[VP-C_i_assessor_j]$ is calculated (Table 7):

Table 7. The comparison matrix

Criteria C_i	assessor_1	assessor_2	assessor_3	assessor_4	assessor_5	$VP_C_i_assessor_j$
assessor_1	1	Vali1/Vali2	Vali1/Vali3	Vali1/Vali4	Vali1/Vali5	$VP_C_i_assessor_1$
assessor_2	Vali2/Val1	1	Vali2/Vali3	Vali2/Vali4	Vali2/Vali5	$VP_C_i_assessor_2$
assessor_3	Vali3/Val1	Vali3/Val2	1	Vali3/Vali4	Vali3/Valin	$VP_C_i_assessor_3$
assessor_4	Vali2/Val1	Vali4/Val2	Vali4/Val5	1	Vali4/Valn	$VP_C_i_assessor_4$
assessor_5	Valin/Val1	Valin/Val2	Valin/Val3	Valin/Val4	1	$VP_C_i_assessor_5$

In the third step, we synthesize for each decision maker D_i , by multiplying the eigenvector of criteria $[VP_C_i]$ in Table 8, by the matrix formed of the eigenvector of evaluators, relative to a criteria $[VP_C_i_assessor_i]$, using the following formula:

$$[W_assessor_j] = \sum_j \sum_i [VP_ci] \times [VP_ci_evalateur]$$

In general, for each decision maker, the eigenvector of the evaluators $[VP_assessor_j]$ is calculated, and classified in a rank.

Table.8 The eigenvector of evaluators for decision maker D_i

$$[VP_assessor]=[VP_assessor_1,VP_assessor_2,..,VP_assessor_n]$$

X

	criteria_1	criteria_2	criteria_3	criteria_n
assessor_1	$W_C1_assessor_1$	$W_C1_assessor_1$	$W_C1_assessor_1$	$W_C1_assessor_1$
assessor_2	$W_C1_assessor_2$	$W_C1_assessor_2$	$W_C1_assessor_2$	$W_C1_assessor_2$
assessor_3	$W_C1_assessor_3$	$W_C1_assessor_3$	$W_C1_assessor_3$	$W_C1_assessor_3$
assessor_n	$W_C1_assessor_n$	$W_C1_assessor_n$	$W_C3_assessor_n$	$W_Cn_assessor_n$

=

	W_assessor_j	Rang
assessor 1	W_assessor_1	R1
assessor 2	W_assessor_2	R2
assessor 3	W_assessor_3	R3
assessor 4	W_assessor_4	R4
assessor n	W_assessor_n	Rn

As a result, we have the eigenvector of the decision maker D_i (Table 8), represented by the synthesis vector $[W_{si}]$, which classifies different evaluators. The steps previously described will be repeated for each decision maker. We find the following final eigenvector (table 9):

Table.9 The final eigenvector

	Decider i		Decider i + 1		Decider i+2		Decider n	
	W _{si}	Rang	W _{s i+1}	Rang	W _{s i+2}	Rang	W _{s i+n}	Rang
assessor 1								
assessor 2								
assessor 3								
assessor 4								
assessor n								

As a result, we will calculate the final weight of the decision makers, by means of consistency indices.

For each decision maker D_i , the indices of consistency are calculated for comparison matrices, criteria / criteria, and for all matrices assessors / criteria C_i .

The coefficient of consistency is defined by $CR = CI / RI$, with consistency index CI . The consistency index is calculated by $(\text{mean coherence} - n) / n - 1$, with n is the number of parameters, and the consistency average is the average of coherences eigenvector of the weights of the matrix.

The average consistency is calculated by the multiplication of each column of the comparison matrix non-normalized by the weight of the associated criterion. We then assess the consistency, by dividing the sum of

lines by the weight of criteria of the line (Table 10). RI is the random index depending on the number of criteria, measured from random index table (Saaty, 1980).

Table .10 the final weight of the decision makers

	Decider_1	Decider_2	Decider_3	Decider_4	Décider_n
criteria/criteria					
assessor/criteria_C1					
assessor/criteria_C2					
assessor/criteria_C3					
assessor/criteria_Cn					
$\sum CR$					
$\frac{1}{\sum CR}$					
normalisation of CR					
Final weights of deciders (assessed)					
The normalization of CR is performed by dividing each $\frac{1}{\sum CR}$ the sum of the lines $\sum \left[\frac{1}{\sum CR} \right]$.					

After having calculated individually vectors for decision-makers by the AHP method, the final ranking of the evaluators is calculated by aggregating the vectors of priorities for each decision maker.

We note the two main modes of aggregation vectors priorities [(Forman, E. H. and K. Peniwati, 1998)].

The first is the aggregation of individual judgments (AIJ) calculated from the arithmetic mean. The second is the aggregation of individual priorities (AIP) calculated from the geometric mean.

The most common approach is the aggregation of individual priorities vectors (AIP), by the geometric mean of the various vectors of properties of decision-makers.

The formula for the geometric mean of the group is given as follows:

$$z_i^G = \prod_{k=1}^j [z_i(k)]^{a_k}$$

j : number of deciders (assessed).

$z_i(k)$: The priority of the alternative i for the decider k .

a_k : The final weight of the assessed (decider) k in the group G .

z_i^G : The priority value of the group aggregation.

In conclusion, for each evaluator, the final weight is calculated, also the classification of his assessment form (table.11).

Table .11 the final weight of the decider-makers

	assessor_1	assessor_2	assessor_3	assessor_4	assessor_n
Final weight					
Rank					

Thus, the assessed group makes a final decision, based on the decision of the high ranked evaluator (it means that, the highest ranked evaluation form, among the forms sent by the evaluators).

As a result, the group compares the values of selected evaluation forms, and the thresholds set at the beginning of the project of the various evaluation criteria, and stored in the referential. After this comparison the evaluated group, makes a decision for a new correction, or submission to a final rating by the tutor

6.3 Decision making in intra group evaluation (peer assessment)

In that case each student receives the intra-group evaluation form by the peers. As well, the student responds to criteria in the individual evaluation forms (Fig10) and sends to its peers in the group. The evaluation criteria in this case are individual evaluation criteria.

This is a particular case of inter-group evaluation, because the learner lonely decides (not in group) of the choice of the most appropriate form from his colleagues. The steps of this process are carried out in the same manner as discussed in inter-group evaluation, except that the assessed will take the individual decision.

The first step is to establish a comparison matrix of criteria. In the second step, the comparison matrices of evaluators in function of each criteria, are calculated. Thus, for each criterion C_i , the decision maker assigns values to different alternatives of evaluators.

For a given criteria C_i , we calculate the comparison matrix, and the corresponding vector of priorities (table 2), then the vector is verified by calculating the consistency index of coefficients. It follows by the calculation of the weight of each evaluator (Table 3) for evaluation criteria.

The resulting priority vector, gives different weights of evaluators, with their ranking position for each criterion. The classification provides us with the relevant assessment form, which allows the learner to choose either the correction of his activity, or the submission to the group to contribute to collaborative working.

6.4 Decision making in self-assessment

The self-assessment is carried out by the learner, which performs individual activity, then fills out a self-evaluation form (Fig. 9). Following values of responses to the evaluation criteria, the tutor compared with a reference value of criteria drawn up by the pre-test at the beginning of the project. Finally, the tutor takes the decision to move the learner to another activity, or continue its ordinary path.

6- Conclusion

This work has been established in a perspective to provide the authors with a modelling language based on the process in a pedagogical project. Our approach is based on modelling the processes of learning in a pedagogical project.

The second generation of the theory of activity has been a great theoretical support, by introducing the social component in project-based learning. The Framework of the theory, allows us to define the concepts of our meta-model, and the relationships between them.

In our meta-model, was introduced the concept of decision making, that is important in a collaborative work. We chose the AHP method for the individual decision and in group.

Our approach is illustrated by the evaluation process, which addresses the evaluation in inter-group, and intra-group. During this process, learners must take individual or group decisions, in order to make the necessary corrections in accordance with the evaluation criteria, or for validate the activity. The process of decision AHP helped us in the evaluation of the collaborative report.

However, the AHP method has limitations such as the choice of weights for the evaluation criteria, which affect the decision for the validation, or the correction of the work.

In perspective of this work, we will evaluate the process of decision making, by creating indicators of the decision performance. The indicators of the process inform the tutor of the pertinence of the decision.

In that purpose, we will use the process mining technique for the decision making.

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Quality education in graduate mechatronics programs at Egypt-Japan University of Science And Technology

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Abstract

This paper introduces the experience of “Egypt-Japan University of Science and Technology, *E-JUST*” in establishing research oriented-graduate engineering educational programs, founded on “Project Based Learning (PBL)”. PBL as a “*learning by doing*” methodology, is proved to be the most appropriate method of active learning, which is applied by merging theories with laboratory experimental work while satisfying the professional skills which match high demanded engineering workforce in industry and R&D centers. *E-JUST* applies Project-Based Learning (PBL) approach to promote active and deep learning by involving students in investigating real-world problems in a collaborative experimental environment. PBL is particularly an appropriate educational approach as it exposes students to practical learning by identifying the problem through “critical thinking” and proposing scenarios for competitive solution, and thus students become among the decision makers in future real professional environment. The innovative platform for education and research at *E-JUST* was established with a partnership of Japanese supporting universities to conduct an advanced education and research in the interdisciplinary graduate programs. The university has been pioneering new interdisciplinary fields for providing technologies required to create a sustainable society in Egypt, Africa, and Arab countries. The partnership with Japanese universities and the internship of Egyptian graduates in research laboratories of Japanese counter part universities makes *E-JUST* graduates enjoy international status in education and research.

Keywords: Project Based Learning; Problem Based Learning; Lab Based Learning

1. What Went Wrong in Engineering Education

Today’s engineering graduates need to have strong professional and teamwork skills, in which they mostly lack component design, systems design, analytical skills, and professional skills. They graduate with good knowledge of engineering sciences, but generally their learning outcome does not match the highly demanded practical skills neither in industry nor in R&D centers, due the following reasons:

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1. Lack of skilled faculties/instructors who acquire high practical/experimental skills, due to the limited number of professors who used to be professional leaders in their specialization.
2. Improper design of well-tailored course material supported by proper experimental equipment/ devices, and competitive real word physical projects.
3. Limited resources of hardware, equipment, instrumentation, virtual Labs and software facilities.
4. Reluctant passive education approach, which is entirely based on the traditional teaching methodology, rather than the active learning with the spirit of teamwork.
5. Lack of proper students' assessment system and students feedback in order to enhance the course material and learning process to satisfy the Intended Learning Outcomes "ILO's".
6. Assessment methods which are based on evaluating exam papers and answers sheets, are not suitable to measure the real skills of students, which may affect results thrust wordy.
7. Faculties/Instructors need professional training programs in specialized Institutions/advanced training centers before being involved in interdisciplinary engineering education courses.
8. Junior faculties and instructors generally miss the professional practical skills, and institutions must arrange well-oriented capacity building training programs.
9. Inadequate rules and policies of institutions to apply "Project-Based-Learning", "Problem-Based-Learning" and "Lab-Based -Learning" in all Engineering programs.

2. Engineering Education Enhancement:

Universities and higher institutions nowadays enhance engineering education to improve their graduates' professional skills and to increase the opportunities of the competitive market's need for demanded talented jobs. Higher institutes tackle various "active and interactive learning policies" to enhance students' Intended Learning Outcomes. Project – Based- Learning approach engages students in investigating physical problems in collaborative teamwork. Students collaborate with each other in planning their investigation activities, collecting and analyzing data, sharing ideas, drawing conclusions, and creating final products. These active investigations enable them to learn concepts, and apply information in creating their final products that are vital in constructing new knowledge.

What is important is what the students practice and create to build their innovative spirit as future industrial and researcher leaders. *"Learning takes place through the active behavior of the student, it is what he does that he learns, not what the instructor does"*, Tyler [1].

The general trend in engineering education in Egypt is the traditional way of learning, namely, the classes, the library and the self-study. However, there is a recent trend in many institutions to apply e-learning, but the trials are limited to few courses. The trend to advance teaching methods is spread nowadays. The TEMPUS grants and the national Higher Education Enhancement Projects Fund (HEEPF) are encouraging applying for financed

projects for enhancing learning methods. All engineering students have to work on real industrial problems in the final graduation projects, during the last year of their study. Most of these projects are assigned to small groups of students to practice the group working in design problems usually of impact on the regional industry or large establishments. Two or three faculties usually supervise each project.

The working groups define and analyze the real problem and design practical systems to solve the physical industrial problems, which enhance students' professional skills [2].

In 2006, the Egyptian Ministry of Higher Education started leading national projects for enhancing higher education programs (HEEPF). The Mechatronics Engineering group at Assiut University of Egypt implemented a national project: HEEPF Grant A-085-10-MOHE to enhance the quality of Mechatronics courses by applying PBL approach and using Multimedia Lab to transfer the process of passive teaching to active learning based on a cooperative team work and students assessment feedback [3-4-5]. Although PBL is the core approach for experimental learning environment, it faces some difficulties in real applications due to lack of experience, facilities, and some time teamwork spirit [6].

2.1 Project -Based Learning and Problem -Based Learning Impact on Education:

The two strategies have a multi- disciplinary orientation and both form pillars of active learning. There are some similarities and some differences:

- Both are open ended with regard to outcomes.
- Both rely on teamwork, in which student assessments are basic aspects and their feedback is a must to evaluate the Intended Learning Outcomes.
- Project tasks are closer to professional reality.
- Project - Based Learning work is more directed to the *application* of knowledge, whereas Problem-Based Learning is more directed to the *acquisition* of knowledge.
- Project-Based Learning is usually accompanied by applied interdisciplinary engineering courses (Advanced Mechanical Design, CAD/CAM, Advanced Mechatronics Systems, Robotics, Energy, Bio-Mechatronics, Environment, Manufacturing Processes, etc.).
- Management of time and resources by the students is very important in Project-Based learning.

3. Project-Based Learning Approach (PBL):

As early as 1900s, John Dewey, the father of progressive education supports “*learning by doing*”; he promotes educational strategies that helped students to actively engage in learning topics relevant to their lives. Teaching is not a transformation of knowledge, but a construction of knowledge by the students' own activities and building on what they already understand. “*PBL is a comprehensive, deep learning approach to elaborate motivated learning that engages students in the investigation of real environment*”, Biggs & Tang 2007[7].

3.1 PBL Strategy:

The general strategy of PBL approach, Fig.1, is defined by the following corner stones:

1. It involves the solution of a physical problem, with open-end solution, through problem identification, modelling and simulation, system design, experimental system integration, testing and analysis, and submitting final product and /report.
2. It involves the initiative by group of students, and necessitates a variety of educational activities.
3. It usually results in an end product (e.g., report, program, model, component, experimental measurements and analysis).
4. It often goes on for a considerable period of time; one semester.
5. Instructors are facilitators who assume advisory roles instead of authoritarian.

To make PBL effective, instructors play important roles in motivating students and creating a laboratory-working environment for students learning. Collaboration among the students, instructors, and others in the community is important so that knowledge can be shared and distributed among the members. In addition, students' progress needs to be observed so that problems can be detected early.

Constructive alignment is an approach to design a curriculum that optimizes the conditions for quality learning. On the other hand, '*alignment*' means that what the instructor does is to provide a learning environment that supports the learning activities, which are appropriate to achieve the desired learning outcome. "*What is important is what the students does*".

It is expected that students will gain significant qualities from this PBL style course, in particular:

1. Students begin their long road on their discovery of how to be a lifelong learner and how to approach problems and challenges involved in practical field, and how to meet challenges at a personal level.
2. The ability to work as a collaborative team to plan, manage, design, and implement their project.
3. A grasp of ethical and professional standards that are required in all personal interactions and in dealing with any data that they collect.
4. Enhancing student's ability to draw plans and diagrams and communicates with a client using effective figures and charts for professional communication.



Fig.1 PBL Strategy

4. E-JUST as a Role Model for Higher Education in Egypt:

The mission of *E-JUST* is to become a role model for graduate education and research institutions in Egypt by fostering the Japanese educational standards, policies, and systems. In this regard, *E-JUST* has established links of collaboration between Egyptian and Japanese academic institutions, while enjoying a status of international recognition by providing research oriented education, founded on “Laboratory Based Learning,” Project Based Learning”, and ” Problem Based learning”.

The Faculty of Engineering and Applied Sciences in “Egypt-Japan University of Science and Technology“ in its first phase constitute three engineering schools. The innovative platform for education and research at *E-JUST* was established with a partnership of Japanese supporting universities to conduct an advanced education and research in the interdisciplinary graduate programs. The university has been pioneering new interdisciplinary fields for providing technologies required to create a sustainable society in Egypt, Africa, and Arab countries.

The partnership with Japanese universities and the internship of Egyptian graduates in research laboratories of Japanese counter part universities makes *E-JUST* graduates enjoy international status in education and research.

The university in the soft opening stage 2010 – 2013 started with three engineering schools, namely:

1. School of Electronics, Communications and Computer Engineering.
2. School of Innovative Design Engineering.
3. School of Energy, Environment, and Chemicals and Petrochemicals Engineering.

The university (*E-JUST*) in this stage, grants the Master of Science (M.Sc.) and Doctor of Philosophy (Ph.D.) degrees for B.Sc. Engineering or equivalent graduates in the following interdisciplinary specializations:

1. Electronics and Communications Engineering
2. Computer Science and Engineering
3. Mechatronics and Robotics Engineering
4. Industrial Engineering and Systems Management
5. Materials Science and Engineering
6. Energy Resources Engineering
7. Environmental Engineering
8. Chemicals and Petrochemicals Engineering

5. Mechatronics and Robotics Engineering Department (MTR) at *E-JUST* - Case Study:

The Mechatronics and robotics engineering discipline is a synergistic integration of precision machinery, electronics, sensors and actuators, and information technology to design innovative and smart products in Bioengineering, Space technology, automotive and Industrial systems. Mechatronics system can be represented by the overlapped intersection of the three fields, as shown in Fig.2.

The research priorities of the graduate programs are in the areas of Bio-Mechatronics, Autonomous Robots, Intelligent Mechatronics Systems, and Micro -Electro-Mechanical Systems (MEMS) for industrial, automotive, and bio-medical applications.

The vision of Mechatronics and Robotics department is to stand among the best Mechatronics departments in the region through establishing the state of the art research and education environment for excellent research impact, outstanding graduates and quality of community service. The Mechatronics research Labs are demonstrated by Fig.3.

E-JUST applies Project-Based Learning (PBL) approach to promote active and deep learning by involving students in investigating real-world problems in a collaborative environment. PBL is particularly appropriate as it exposes students to practical learning by identifying the problem through “critical thinking” and proposing scenarios for competitive solution, and thus its students become among the decision makers in the future of real professional environment.

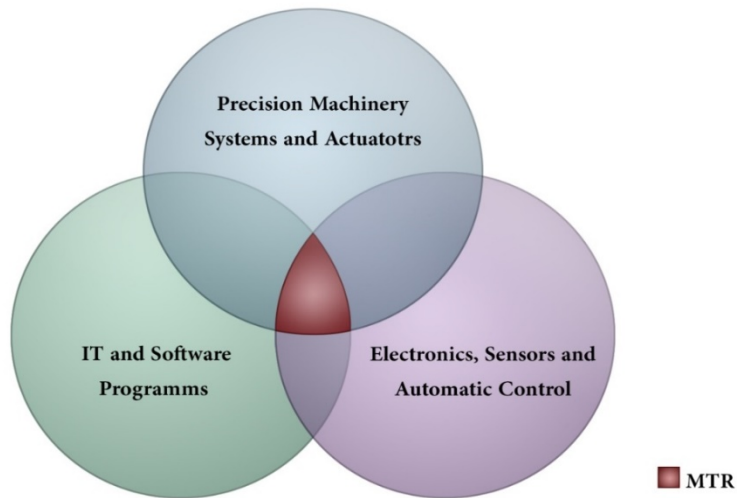


Fig. 2 Mechatronics Discipline

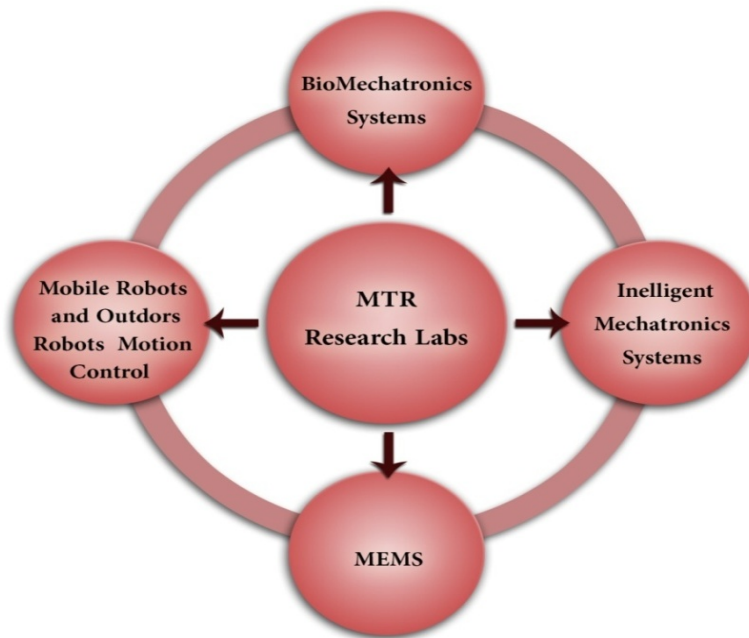


Fig.3 Mechatronics and Robotics Research Labs

5.1 Mechatronics and Robotics Graduate Programs (MTR):

The M.Sc. program includes 3-credit hours for Project-Based Learning Lab work to improve professional skills of students, while the Ph.D. program includes 6- credit hours for advanced research seminar course work to

develop students' research skills. The graduate courses of Mechatronics and Robotics programs are shown in Table-1. Graduate education in *E-JUST* is research oriented, where graduate courses are designed to match the main research tracks. The graduate students from the early beginning are given the opportunity to select freely their research tracks and consequently research Laboratories through active participations in weekly Lab seminars, where students are advised by their academic advisors to give seminars in recent advanced research topics related to their research Laboratories. Egyptian and Japanese faculties are sharing in the education process and in supervising students' M.Sc. and Ph.D. thesis

Table-1 Mechatronics and Robotics Graduate Courses

M.Sc. Program	Ph.D. Program
<p>Core Courses:</p> <p>MTR 501- Advanced Mechatronics Systems</p> <p>MTR 502- Optimal Control</p> <p>MTR 701- Project Based Learning in Mechatronics and Robotics</p> <p>Elective Courses (three courses):</p> <p>MTR 503- Advanced Control Systems</p> <p>MTR 504- Micro Electro-Mechanical Systems (MEMS)</p> <p>MTR 505- Mobile Robots and Vision Systems</p> <p>MTR 506- Advanced Topics in Mechanical Systems Design</p> <p>MTR 507- Intelligent Robots</p> <p>MTR 508- Robot Kinematics, Dynamics and Control</p> <p>MTH 501- Advanced Mathematics and Statistics</p>	<p>Elective Courses:(Four courses)</p> <p>MTR 601- Intelligent Control Systems</p> <p>MTR 602- Advanced Robotics</p> <p>MTR 603- Advanced Bio-Engineering Systems</p> <p>MTR 604- Bio-Mechatronics Systems</p> <p>MTR 605- Smart Sensors and Actuators</p> <p>MTR 606- Nonlinear Control Systems</p> <p>MTR 607- Learning Algorithms and Neural Networks</p> <p>MTH 601- Advanced Mathematics and Statistics II</p> <p>Advanced Research Seminar Courses:</p> <p>MTR 702– Seminar on Advanced Mechatronics and Robotics Systems</p> <p>MTR 703 –Seminar on Mechatronics and Robotics Recent Research Topics</p>

5.2 Project - Based – Learning (PBL) in *E-JUST* Graduate Courses:

PBL has the potential to enhance deep learning, as students have to acquire and apply concepts and principles in solving practical problems. It also promotes critical thinking, as they have to formulate plans and evaluate solutions. In addition, PBL moves students from passive learning to active learning, and helps to improve communication, collaborative skills, and professional's skills that are important in their working life later.

In Project-Based Learning laboratories at *E-JUST*, students works in small groups with a team of instructors who are advisers and consultants. Projects are undertaken throughout the length of the course along a period of one semester. The projects are usually combined with different active learning methods within the same course. The

interdisciplinary courses in *E-JUST* graduate Programs are implemented by applying “project--Based – Learning” approach, merged with “Problem –Based Learning” and “Lab Based Learning” approaches.

E-JUST interdisciplinary programs include an obligatory M.Sc. PBL course: e.g. MTR 701 Project-Based-Learning in Mechatronics. *E-JUST* applies Project-Based Learning (PBL) methodology as core experimental courses for Master of Science (M.Sc.) students in all interdisciplinary graduate programs, with the intensive use of real laboratory models. Fig.4 illustrates the PBL structure.

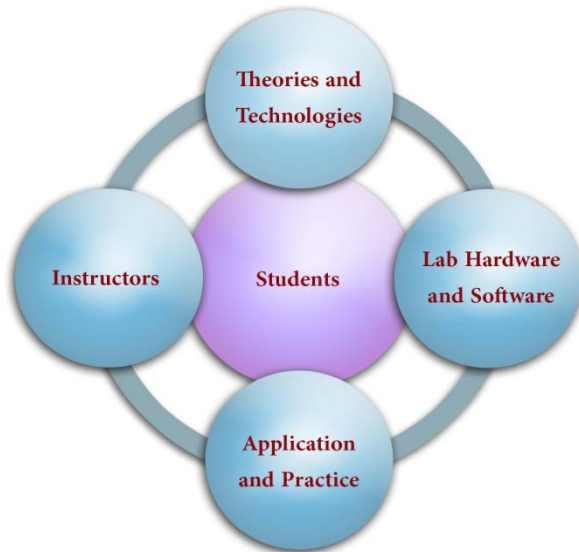


Fig. 4 PBL Structure

E-JUST and Waseda University’s specialized faculties started from the early beginning of 2009-2010 to hold workshops to develop the experimental course materials and equipment required to implement the PBL experimental course on Mechatronics. This necessitates designing the experiments, selecting the software, and designing laboratory catalogue and laboratory equipment early in 2010. The laboratory is well equipped with: Hardware (motors, encoders, sensors, smart actuators, robots, humanoid robots, photo Cells, PCs, Microcontrollers, Microprocessors, digital oscilloscopes, power supplies, electronic cards...etc.) and Software (MATLAB, Simulink, C++, Lab View, Solid Work, etc.) with extension to real-time applications, keeping the balance between theory and practical problems. Assessment of students’ activities is illustrated in Table-2.

Table-2 Assessment of Students' Activities in PBL Experimental Course- MTR 701

Type	Percentage	Grading criteria
Project final evaluation	30%	The student should complete the laboratory based learning project and give a Presentation and submit his project.
Middle term evaluation	30%	The student should to be able to explain one of the practices done during the course and/or modify it accordingly to new specifications.
Homework, Lab tutorials, Paper study, and Attendance	30%	Homework checking and active participation in the Lab. The student should attend at least 80% of the course work. The student should participate to the tutorial sessions with the lab engineer/technician.
Team work Cooperation	10%	The student will receive a grade related to the work autonomy and group cooperation.



Fig. 5 Work team in PBL Lab with Presence of Instructor (MTR 701)

The PBL learning approach in Mechatronics graduate education programs in *E-JUST* transferred classical passive teaching to active/interactive learning with excellence in high quality education. Fig.5 highlight samples of students' activities in PBL lab.

The above laboratory practices represents an experimental learning approach, which is an integrated learning methodology combining Project Based Learning, Problem Based Learning, and Lab Based Learning which results in a real final product. Fig.6 highlights this integrated active learning style.

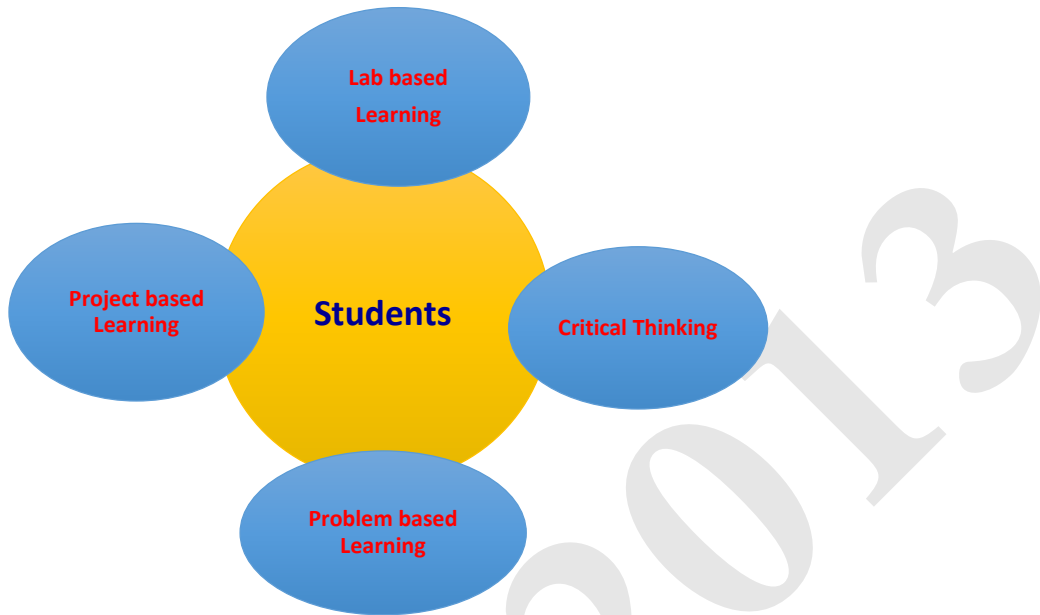


Fig. 6 Experimental Learning Environment

6. Conclusions and Recommendations:

- a. Project Based Learning (PBL) is a learning approach that has a significant potential to transform teaching from a passive educational process to an active learning environment, where students are actively engaged in laboratorial experimental work, resulting in deeper learning and gained significant skills and professional outcomes. PBL is an active learning approach that merges engineering sciences theories with technologies through collaborative experimental learning environment in order to achieve final industrial products.
- b. The experimental Learning approach, which is an integrated laboratory learning methodology, is recommended as a competitive engineering learning approach.
- c. Competitive assigned projects based on physical problems are more proper to build the students' professionals skills and construct their abilities in design, analysis, and management.
- d. Necessity of adequate strong rules and policies of institutions to apply Project-Based-Learning, Problem-Based-Learning, and Lab-Based-Learning methodologies in all Engineering programs.
- e. Availability of resources, to provide hardware components and software packages is a must.
- f. Adequate capacity building professional training programs is essential for new faculties.
- g. Involvement of industry experts in allocating real industrial problems for competitive projects is necessary.
- h. Training of students in industry and professional establishments must be compulsory in all engineering institutions.
- i. Institutions are recommended to unify main curriculum courses in specialized programs, to encourage internalizations of higher education in the near future and to enable credit transfer and students' mobility, making the best use of the most successful practices.

Acknowledgment:

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4th International Conference on New Horizons in Education

Raising interest in the study of science and technology at the Technical University of Liberec

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Abstract

This article focuses on the authors' practical knowledge of working with children, students of secondary schools and colleges in encouraging them to study science and technology at the Technical University of Liberec. The authors have gained their experience during several years of implementing an incentive programme called "Children's University", which simulates the desire for higher education predominantly through interesting leisure activities for children, young people and their parents. In addition to mock university examinations the Children's University offers many different leisure activities. The main objective of the Children's University is to catch talented individuals early and awaken their interest in university studies of technical and scientific disciplines in order to better direct their future professional orientation towards sectors with high added value, which the labour market has a long-term interest in.

Keywords: technical and natural sciences, Children's University, Scientific Incubator, incentive programme

1. Introduction

In recent years we have witnessed a continual decline of the interest of high school graduates in studying science and technology at universities in the Czech Republic. A significant decrease was also seen at the Technical University of Liberec (TUL), which decided to actively resolve this unfavourable situation. Over the last four years an integrated communication and outreach platform has been established at TUL composed of both staff and students of TUL and external collaborators who help to actively seek talented children, and to develop and maintain their interest in technical and scientific fields in order to increase the number of talented researchers in these fields. Key activities, focused on developing a system to search and subsequently educate talented young people from elementary, secondary and vocational schools over the long-term, are performed under the title "Children's University". The aim of this article is to introduce the reader to the experiences and success with the implementation of this progressive project. The second chapter will describe the activities and principles of the Children's University, it will also mention some statistical data and finally the reader will learn about the follow-up programme entitled "Scientific incubator".

2. Children's University and its basic principles

As mentioned above, Children's University is the name of the programme at the Technical University of Liberec focused on long-term and systematic work with promising students of primary, secondary and vocational

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schools to awaken and maintain their interest in the study of science and technology. The basic principles of the Children's University are based on the principle of "3C", formed from the initial letters of the words

1. Capture
2. Captivate
3. Connect

Ad 1) This is the first phase of searching for talent. The aim is to reach the largest possible number of potential candidates for activities at TUL. Short informative media events are held with the intent to capture the interest of the participants - children, high school students, their parents, and current students of TUL, get them interested in the results of scientific work at the Technical University of Liberec and attract them to a particular event, described further in sections 2 and 3. Various events are selected where a larger number of people can be assumed i.e. festivals, open-street events, and also short-term leases of space in shopping centres. Furthermore, promotional events led by young researchers from TUL are held in primary and secondary school classrooms by replacing the regular class. These events have already taken place at primary schools in the towns of Doubí, Stráž nad Nisou, Mnichovo Hradiště, Mladá Boleslav and Sokolov, and secondary schools in Česká Lípa, Liberec, Mnichovo Hradiště and České Budějovice.

Ad 2) The first phase is directly followed by activities that aim to bring children and the general public to TUL where they are shown specific instruments, laboratories and procedures and the results of scientific work. For the public from further afield the school and its activities are presented in the form of lectures and seminars. The events can be divided into two categories. In the first are activities for a large number of participants. Examples of such events include:

- **“Open University”** is an event that takes place at the beginning of the academic year and combines elements of fun, learning and getting to know each other. It includes an open-air music festival, performances by school choirs and musical groups, theatre groups, thematic games and competitions for all ages and visits to laboratories and classrooms. In 2012, the event attracted around 2,500 visitors from the students and teachers of TUL, and the public from Liberec and its surroundings.
- **“Walk for science and technology”** is an activity aimed at families with children. Participants follow maps of the university laboratories, where in addition to expert interpretation fun tasks are prepared for all ages.
- **Science cafes** are a new format of outreach events for the general public. They are lecture events for the public focused on the latest results of research and development not only from the Technical University of Liberec, where a team of scientists from TUL describe in laymen's terms such issues as bionics, the impact of electromagnetic radiation on humans or to explore the benefits and application of nanomaterials and nanosurfaces in industry. The science cafes are a two-hour event, the atmosphere corresponds with their name, i.e. a pleasant chat about current issues of science and research over a cup of coffee.

The second category of activities includes “intimate” events or groups of related events where the public, especially children, high school and college students, will try specific aspects of scientific work. The events are often linked with practical demonstrations and visits to laboratories either in TUL or in industrial practice. Specific examples of the activities include:

- **“Saturdays with technology”** are intended primarily for pupils of the 8th and 9th grade who are unsure about what field to choose for further study. Participants can try soldering electronic circuits,

fundamentals of design using a PC, programming or basic video and photo editing, work with vector graphics and much more. Children discover what they are interested in which will help them to decide which secondary school to apply for in their further study.

- **“PřiTUL se!”** is a set of weekly events for primary school children, which take place during the school holidays (autumn, winter, spring, Easter). Children can sign up for a course programming robots, make rings on a lathe, learn to solder, build model airplanes and boats, try out different traditional and non-traditional textile technologies, and participate in interesting chemical experiments in the laboratory etc.

In addition to the above activities other events take place throughout the year such as an algorithm development course in the Karel language for the smallest children, a series of seminars programming CNC machines for high school students, computer graphics for the age group 12-17, and a series of non-traditional textile technology courses for adults, etc.

Ad 3) If the above activities attract children and high school students and galvanize their interest in technical and scientific fields so much that they start thinking about future careers in these areas, they can try a “dry-run” of a university education and participate in the **Children’s University for one full school year**. During their “studies” students will go through all of the steps of a university education including recruitment, matriculation and the subsequent study obligations of a university student. Children “study” subjects through games which focus on engineering - fundamentals of engineering, machining and assembly, automotive design, electrical engineering, robotics, microelectronics and natural sciences - chemistry, physics, fluid mechanics, microbiology and remedial technologies. The Children’s University also offers an opportunity to “study” fields such as material engineering and applied chemistry. Upon successful completion of the lectures, seminars, semester projects and thesis defence children who obtain the required number of credits attend a graduation ceremony, where they are addressed by the Rector who awards them with a Children’s University diploma. This year was the third annual Children’s University which was successfully completed by nearly 200 children, as well as in previous years it generated a great deal of interest among both children and their parents, who play a very important role in deciding on the further studies of their children.

The Children’s University and other events for children and young people between 2009 and 2012 were completed by a total of 2,606 primary school pupils, 654 girls and 1,952 boys, and 266 secondary school students, 58 girls and 208 boys.

In addition to activities aimed at primary school children events are also organized primarily directed at high school and university students. Examples are:

- **“T Day”** – During “T Day” individuals and teams have the opportunity to present their unconventional and original idea or thought to an expert committee. A team from TUL then provides financial and material support to the most interesting topics as well as the possibility to use the instrumentation of the TUL laboratories.
- **Cyber robot** – a creative competition especially for high school teams that participate with their home-made robots.
- **Mentoring programme** is an opportunity for applicants from high schools to try one week of university study in their chosen programme under the supervision of a TUL student. Similarly, university students have the opportunity to try scientific work shadowed by a selected doctoral student or TUL researcher.

3. Further principles of the Children’s University

Several years of experience working with talented children and students have given the Children’s University team of implementers the chance to verify the following rules:

- Voluntariness – events are intended only for those candidates who register voluntarily.
- “Edutainment” - Participants are actively involved in all activities so that they “get a feel” of the theory and participate in the experiments and production of prototypes, graphic editing of photography, technical aids or develop their own computer program, etc.
- Involvement of parents and grandparents – Parents play a crucial role in the future direction of their children’s study, therefore the implementers of the Children’s University regularly invite parents as well as their children to their events.
- “The sooner, the better” - it is necessary to catch the interest of children in technical and natural sciences with development related to these disciplines from early childhood where children exhibit an immediate interest.
- Patience and durability – the implementers of the Children’s University realize that a technical education is a long and enduring journey, the results of which will take effect only after years of effort. Some results of the Children’s University are already reflected with up to twice as many applications at the Secondary School of Mechanical and Electrical Engineering in Liberec, which was once part of the Children’s University project team.
- Promotion of “good example” - The best advertising is a good reference which spreads itself among people. The implementers have verified in particular the promotion of “good example”, where information about events is spread directly by the participants to their friends and acquaintances. (Hernych, 2012; Kretschmerová, 2012)

4. Science Incubator

The Science Incubator is a follow-up programme to the Children’s University. It is aimed at students of Bachelor’s and Master’s degree programmes at the Technical University of Liberec. The aim of the Science Incubator is to catch talented young scientists in time and keep them for research work at TUL. The Science Incubator offers a variety of activities:

- **Open days for students in the laboratory** take place together with the **exchange of themes with offers to participate in activities within R&D teams.** Young scientists can become a junior scientist in scientific research projects or obtain a current diploma or thesis themes.
- **All-day courses and seminars** - Implemented Scientific hatchery together with researchers TUL students represent the results of their research in order to engage talented young scientists in their research teams.

- **Excursions for students to interesting sites linked to research activities** - Students can visit interesting places and companies where they work with the research results. In the past excursions include a nuclear power plant, Škoda Auto, Josef UEF and other interesting places.
- **Use of Science Incubator equipment for the realization of their own ideas** – the Science Incubator has the financial resources to purchase new laboratory equipment or for their development at TUL. On the already mentioned “T day”, if the committee is interested in their ideas, students can obtain financial support and the opportunity to use new laboratory equipment at TUL.
- **Student workshop or “MOCK EXAM”** – the Student workshop is intended for TUL students who are preparing for their final exam and defence of their Bachelor’s or Master’s thesis. Under the guidance of a mentor they prepare a mock defence of their thesis and presentation in front of several people. The mentor is ready to advise the student and correct his/her verbal communication and reasoning.

5. Investigation of interest in the study of science and technology among students of primary and secondary schools and grammar schools

To determine the interest in activities offered by the Children’s University the implementers of the project in 2011 conducted a survey at primary and secondary schools. In total, 132 children and primary and secondary school and college students were interviewed, 92 boys and 40 girls. Most pupils were from grade 6 to 9 (73 children), as well as students of secondary schools (33). Sixteen were primary school pupils from grade 1 to 5, and five respondents were grade 5 to 8 grammar schools and secondary vocational school or college students. The results of this survey are listed below:

Table 1.

Attend	No.	%
Primary school grade 1-5	16	12%
Primary school grade 6.-9	73	55%
Multi-year grammar school (1 st to 4 th)	33	25%
Multi-year grammar school (5 th to 8 th)	5	4%
Four year grammar school	0	0%
secondary vocational school / college	5	4%

Respondents were asked brief questions on whether they were interested in technology or not, only one replied that they were not interested in technology. If the respondents expressed an interest in technology or natural sciences the survey continued. When asked for a specific field of technology or science disciplines respondents expressed interest in the following areas (in this case it is necessary to note that respondents could choose more than one):

Table 2.

Interest	No.	%
Robotics	68	52%
Electrical engineering	55	42%
Mechanical engineering	42	32%
Automobiles	28	21%
Microbiology	29	22%
Ecology	19	14%
Nanomaterials	33	25%
Chemistry	38	29%
Computers	92	70%
None of the above	0	0%

Most children and students were interested in computers (92), robotics (68) and electrical engineering (55), followed by mechanical engineering (42), chemistry (38) and nanomaterials (33). Less interest was expressed in microbiology (29) and automobiles (28). The lowest interest was in ecology (19). All of these disciplines can be studied at the Technical University of Liberec; hence the implementers were able to verify the sense of the activities of the Children's University at TUL. Another question was whether the respondent wanted to study in at university:

Table 3.

Would you study at university?	No.	%
No – not interested	0	0%
No – I don't feel like it	0	0%
No – there's no point	0	0%
Yes - I like to learn new things	51	39%
Yes - it is necessary for my future	38	29%
Yes - It will ensure me a better life	28	21%
Not sure	15	11%

In total 117 children and students responded that they want to study at university. Only 15 respondents said that they did not know. Most children and students (51) responded that they want to study at university because

they like to learn new things, 38 respondents said that it is necessary for their future and 28 respondents said that their study will ensure them a better life.

The next question was whether the respondent wanted to try a “dry-run” of a university, to which 131 respondents answered positively. Ninety children and students said they would like try a “dry-run” of a university with their current classmates and another 41 children or students would like to go to school with university students and see what happens there. Only one respondent said that they are not interested in this activity.

Another question asked whether the respondent would be interested in the work of a scientist.

Table 4.

Would you be interested in the work of a scientist?	No.	%
Yes – it is a well paid job	5	4%
Yes – it must be interesting and fun	85	64%
Yes – it has social prestige	1	1%
No – it is a badly paid job	5	4%
No – it is boring	0	0%
No – I could not handle it	1	1%
I don't know, I'm not interested in it	5	4%
I don't know, I'd like to try it	30	23%

A total of 64% of students and children responded that they would be interested in the work of scientists because it must be interesting and fun, 23% did not know but would like to try it and another 4% of children and students did not know because they are not interested. Four percent of respondents answered negatively because the work is poorly paid. It is interesting that the same number of respondents said that they would be interested in the work of scientists because in their opinion it is well paid, and 1% would be interested in the work because it has social prestige. Only 1% of respondents answered negatively with the feeling that they could not handle this work. Thus, 76% of children and students positively responded with various reasons.

The survey also examined whether the respondent wanted to try the work of a scientist - see Tab. 5

Table 5.

Would you like to try the work of a scientist?	No.	%
Yes – I'd like to work on a prescribed task	39	30%
Yes - I'd like to see what scientists do all day	15	11%
Yes – I'd like to try to invent something in the laboratory	78	59%
No	0	0%

All of the respondents answered yes, while 59% of respondents mentioned that they would like to try to invent something in the laboratory as the reason for their interest, 30% of children and students would like to work on a prescribed task. Only 11% explained that they would like to see what a scientist does all day.

The survey indicated to the implementers of the Children's that children and high school students have an increased interest in studying science and technology and thus also the leisure activities of the Children's University.

6. Conclusion

To capture and maintain the interest of children and young people in technology and science fields is a "long haul" which is already producing results. This experience has been verified in practice over the past four years by the implementers of the Children's University and the Science Incubators. Activities of both projects have captivated thousands of children, students and their parents and we can say that the interest in technical and scientific fields at Liberec schools has begun to increase. Evidence of increased interest can be found both in the results of the survey mentioned in the Section 5 and also double the number of applications to study at the Central School of Mechanical and Electrical Engineering in Liberec. Hopefully, the efforts made by the implementers of the Children's University and Science Incubator will reflect in future in an increased interest in studying at the Technical University of Liberec, which will be able to offer highly qualified specialists to industrial enterprises based on their demand.

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4th International Conference on New Horizons in Education

Random effects in the entrance examinations

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Abstract

In this paper we shall study a risk of acceptance students with lower performance levels when the multiple choice question tests are applied for entrance examinations. We shall use the entrance examinations at the Faculty of International Relations at University of Economics in Prague. In this case a model of binomial distribution can be used to answer the following questions (under assumption of random choice of answers): what is probability that number of right answers exceeds given number, what is expected number of right answers, etc. The results obtained in the analysis may be used for considerations about how well the results in test can discriminate between students with high level of abilities and students with lower performance levels.

Keywords: Entrance examinations, binomial distribution, multiple choice question tests, probability.

1. Introduction

Multiple choice question tests are widely used in testing knowledge of students. One of the advantages of such type of test is that the results can be evaluated quite easily even for large number of students. On the other hand, a student can obtain certain number of points in the test purely by guessing the right answers and this fact affects reliability of the test and should be considered in interpretation of test scores. This problem is addressed in education research – see Zhao (2005), Klufa (2012), Zhao (2006), Klufa (2013) and Premadasa (1993).

An analysis of a multiple choice question test from probability point of view is provided in this paper. This test is for example used for entrance examinations at University of Economics – see Klufa (2011). Note that standard (no multiple choice questions) tests are used for checking knowledge of students in mathematics courses at University of Economics – for analysis of such test see (Kaspříková, 2011), but regarding entrance examination, multiple choice questions are preferred so that the results of tests can be obtained quickly and there is clearly no impact of any subjective factor in evaluation.

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Entrance examinations at the Faculty of International Relations at University of Economics in Prague include mathematics, English and other language. Test in mathematics has 8 questions for 6 points and 4 questions for 13 points (100 points total). Each question has 5 answers. Test in English or other language has 40 questions for 2,5 points (100 points total). Each question has 4 answers. Questions are independent (one answer is correct), wrong answer is not penalized. We provide an answer to the following questions (under assumption of random choice of answers): what is probability that number of right answers exceeds given number, what is expected number of right answers, what is standard deviation, and finally what is a risk of success of students with lower performance levels.

2. Methods

Multiple choice question tests (the test has n questions, each question has m answers) are applied for the entrance examinations at the Faculty of International Relations. Therefore a model of binomial distribution can be used for the entrance examinations. From probability point of view a multiple choice question test means:

Let us consider n independent random trials having two possible outcomes, say “success” (right answer) and “failure” (wrong answer) with probabilities p and $(1-p)$ respectively. Probability of correctly answered question p (under assumption that each of m answers in particular question has the same probability and just one answer is correct) is $p=1/m$.

Let us denote X as number of successes (right answers) that occur in n independent random trials. X is random variable distributed according to the binomial law with parameters n and p . Probability that number of successes is k ($k=0, 1, 2, \dots, n$) is (see e.g. Marek (2012))

$$P(X = k) = \binom{n}{k} p^k (1 - p)^{n-k} \quad (1)$$

The expected value and the standard deviation of random variable X distributed according to the binomial law with parameters n and p is

$$E(X) = np, \quad \sigma(X) = \sqrt{D(X)} = \sqrt{np(1-p)} \quad (2)$$

where $D(X)$ is dispersion of random variable X .

The distribution function of random variable X distributed according to the binomial law with parameters n and p is

$$F(x) = 0, x < 0, \quad F(x) = \sum_{k=0}^{[x]} \binom{n}{k} p^k (1-p)^{n-k}, x \geq 0 \quad (3)$$

where $[x]$ is integer part of x .

3. Entrance examinations in mathematics and English

Entrance examinations at the Faculty of International Relations at University of Economics in Prague include mathematics, English and other language.

Entrance examinations in mathematics have 8 questions for 6 points and 4 questions for 13 points (100 points total). Questions are independent. Each question has 5 answers (one answer is correct), wrong answer is not penalized. Under assumption that each answer has the same probability, probability that a particular question is correctly answered is $p=1/5$.

Entrance examinations in English (or other language) have 40 questions for 2,5 points (100 points total). Questions are independent. Each question has 4 answers (one answer is correct), wrong answer is not penalized. Under assumption that each answer has the same probability, probability that a particular question is correctly answered is $p=1/4$.

Let us denote

Y_1 = number of points in test in English, Y_2 = number of points in test in mathematics.

Example 1. Under assumption of random choice of answers we shall find probability that number of points in test in mathematics is 25.

Let us denote

T_1 = number of right answers in the first 8 issues

T_2 = number of right answers in following 4 issues

Random variables T_1, T_2 are independent, therefore we have (see e.g. Feller (1970))

$$P(Y_2=25) = P[(T_1=2) \cap (T_2=1)] = P(T_1=2) P(T_2=1)$$

Random variable T_1 has binomial distribution with parameters $n=8$ and $p=0,2$. Random variable T_2 has binomial distribution with parameters $n=4$ and $p=0,2$. According to (1) we obtain

$$P(Y_2 = 25) = \binom{8}{2} 0,2^2 0,8^6 \binom{4}{1} 0,2^1 0,8^3 = 0,120259.$$

Analogously, we can calculate the probability $P(Y_2=k)$ for other $k=0, 6, 12, 13, \dots, 94, 100$ (see Table 1 and Figure 1). For this calculation we used software Mathematica (Statistics 'DiscreteDistributions') – see Wolfram (1991).

Table 1. Distribution of number of points in test in mathematics

Points in test	Probability	Points in test	Probability
0	0,068719	51	0,007516
6	0,137439	52	0,000268
12	0,120259	55	0,000034
13	0,068719	56	0,001409
18	0,060130	57	0,003758
19	0,137439	58	0,000537
24	0,018790	61	0,000001
25	0,120259	62	0,000176
26	0,025770	63	0,001174
30	0,003758	64	0,000470
31	0,060130	68	0,000013
32	0,051540	69	0,000235
36	0,000470	70	0,000235
37	0,018790	74	4×10^{-7}
38	0,045097	75	0,000029
39	0,004295	76	0,000073
42	0,000034	81	0,000002
43	0,003758	82	0,000015
44	0,022549	87	7×10^{-8}
45	0,008590	88	0,000002
48	0,000001	94	1×10^{-7}
49	0,000470	100	4×10^{-9}
50	0,007046	Sum	1,000000

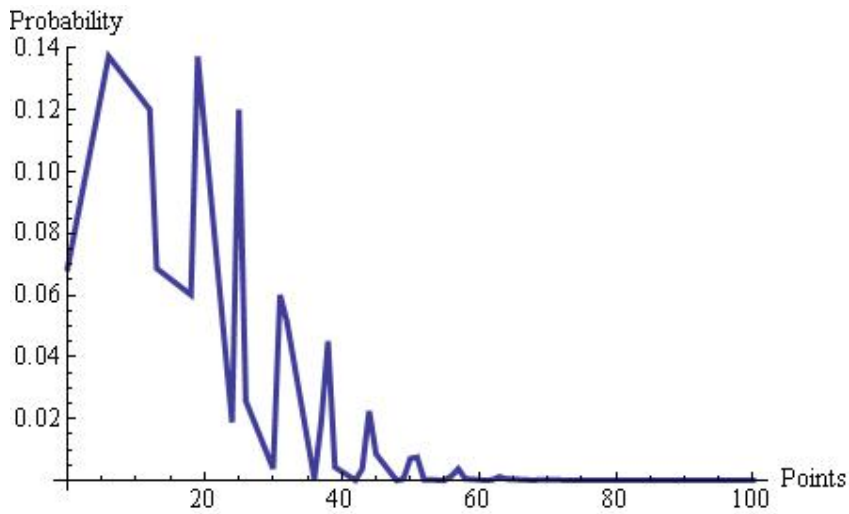


Fig. 1. Distribution of number of points in test in mathematics (polygon)

Remark 1. Similarly we can find distribution of number of points in test in English, i.e. distribution of random variable Y_1 – see Table 2 and Figure 2.

Table 2. Distribution of number of points in test in English

Points in test	Probability	Points in test	Probability
0	0,000010	37,5	0,028192
2,5	0,000134	40	0,014684
5	0,000872	42,5	0,006910
7,5	0,003680	45	0,002943
10	0,011347	47,5	0,001136
12,5	0,027232	50	0,000398
15	0,052951	52,5	0,000126
17,5	0,085730	55	0,000036
20	0,117878	57,5	0,000009
22,5	0,139707	60	0,000002

25	0,144364	62,5	5×10^{-7}
27,5	0,131240	65	9×10^{-8}
30	0,105721	67,5	2×10^{-8}
32,5	0,075903	***	***
35	0,048795	Sum	1,000000

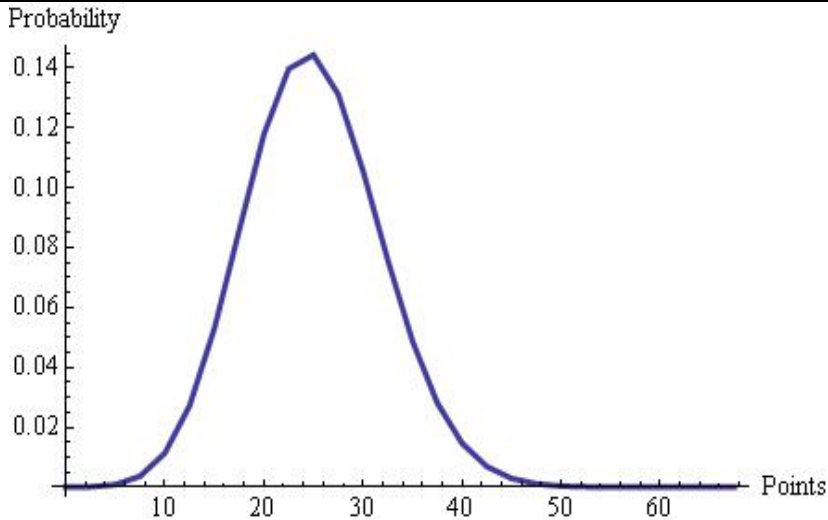


Fig. 2 Distribution of number of points in test in English

Example 2. Under assumption of random choice of answers we shall find probability that number of points in test in mathematics is

- (a) 30 and more,
- (b) 40 and more,
- (c) 50 and more.

(a) Using notation from example 1 we have (see e.g. Rao (1973))

$$\begin{aligned}
 P(Y_2 \geq 30) &= 1 - P(Y_2 < 30) = \\
 &= 1 - [P(Y_2=0) \& \acute{c} (Y_2=6) \& \acute{c} (Y_2=12) \& \acute{c} (Y_2=13) \& \acute{c} (Y_2=18) \& \acute{c} (Y_2=19) \& \acute{c} (Y_2=24) \& \acute{c} (Y_2=25) \& \acute{c} (Y_2=26)] = \\
 &= 1 - [P(Y_2=0)+P(Y_2=6)+P(Y_2=12)+P(Y_2=13)+P(Y_2=18)+P(Y_2=19)+P(Y_2=24)+ \\
 &\quad +P(Y_2=25)+P(Y_2=26)]
 \end{aligned}$$

Finally from Tab.1 we obtain

$$P(Y_2 \geq 30) = 1 - 0,757524 = 0,242476.$$

Under assumption of random choice of answers almost a quarter of students get the test score 30 or more points.

(b) Analogously, we obtain

$$\begin{aligned}
 P(Y_2 \geq 40) &= 1 - P(Y_2 < 40) = \\
 &= 1 - [P(Y_2=0)+P(Y_2=6)+P(Y_2=12)+P(Y_2=13)+P(Y_2=18)+P(Y_2=19)+P(Y_2=24)+ \\
 &+P(Y_2=25) \\
 &+P(Y_2=26)+P(Y_2=30)+P(Y_2=31)+P(Y_2=32)+P(Y_2=36)+P(Y_2=37)+P(Y_2=38)+P(Y_2=39)]
 \end{aligned}$$

Finally from Tab.1

$$P(Y_2 \geq 40) = 1 - 0,941604 = 0,058396.$$

Under assumption of random choice of answers approximately 5,8% of students get the test score 40 or more points.

(c) Finally

$$P(Y_2 \geq 50) = 1 - 0,977006 = 0,022994.$$

Under assumption of random choice of answers approximately 2,3% of students get the test score 50 or more points.

Remark 2. Similarly we can calculate probability that number of points in test in English is 30 and more (40 and more, 50 and more). We have

$$P(Y_1 \geq 30) = 0,284855, \quad P(Y_1 \geq 40) = 0,026244, \quad P(Y_1 \geq 50) = 0,000571.$$

Example 3. Under assumption of random choice of answers we shall find expected number of points in the test in mathematics.

Using notation from example 1 we have

$$Y_2 = 6 T_1 + 13 T_2$$

Therefore - see e.g. Feller (1970)

$$E(Y_2) = E(6T_1 + 13T_2) = 6 E(T_1) + 13 E(T_2)$$

According to (2) we obtain ($E(T_1) = 8 \cdot 0,2 = 1,6$, $E(T_2) = 4 \cdot 0,2 = 0,8$)

$$E(Y_2) = 6 \cdot 1,6 + 13 \cdot 0,8 = 20.$$

Expected number of points in the test in mathematics is 20.

Remark 3. Similarly we can find expected number of points in the test in English. We have

$$E(Y_1) = 25.$$

4. Conclusion

Entrance examinations at the Faculty of International Relations at University of Economics in Prague include mathematics, English and other language. Probability that number of points from test in mathematics is 50 and more is 0,022994 (see Example 2). Analogously, we can calculate this probability for test in English or other

language. We obtain 0,000571 (see Remark 2). That means (the tests are independent: $0,022994 \times 0,000571 \times 0,000571 = 0,00000001$) that approximately one student from one hundred million (under assumption of random choice of answers and using 50 points as a cut-off value for successful completion in each test) successfully makes the entrance examinations at the Faculty of International Relations at University of Economics by pure guessing the answers.

Multiple choice question tests are optimal for entrance examinations at University of Economics. These tests are objective (there is clearly no impact of any subjective factor in evaluation). Moreover, results can be evaluated quite easily for large number of students. From results of this paper follows that risk of acceptance students with lower performance levels is negligible.

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Reading intervention in second-grade children with poor reading abilities

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Abstract

The purpose of the present study is to evaluate a newly developed teaching program that fosters the reading abilities of eleven second grade poor readers. This study is part of the intervention study *Improving Language And Reading Skills (LARS) in children with German as a first or second language*. The present study uses a controlled pre-posttest design. The intervention was applied as individual and small group courses (never more than three children) for children with very poor reading skills who were supported three times a week for nearly five months. Project team members worked with these children on the syllabic principle, decoding and reading skills with small texts and thematically adjusted vocabulary material. The children's reading and language abilities were obtained before and after the intervention period. The results indicate that there are some remarkable learning achievements regarding reading fluency and also slight to moderate gains in reading comprehension in most of the children, whereas the language skills did not improve much.

Keywords: reading intervention; evaluation; case study; reading fluency

1 Introduction

At the end of primary school, many students do not have the skills and abilities to understand age-appropriate texts (see also Bos, Lankes, Prenzel, Schwippert, Walther & Valtin, 2003). In German-speaking countries, about ten percent of students show insufficient reading performance (Hornberg, Valtin, Potthoff, Schwippert & Schulz-Zander, 2007). With regard to Austria, actually 16% of nine- to ten-year-old students belong to the at-risk group in reading literacy (e.g. Suchán, Wallner-Paschon, Stöttinger & Bergmüller, 2007). Until the end of compulsory education one out of four 15-year-old students (about 28%) fails the international standards concerning reading competence (OECD, 2010; Gasteiger-Klicpera, Oswald, Schwab & Ederer, 2011; Schwantner & Schreiner, 2010). For children with German as a second language (GaS), achieving the expected levels of reading proficiency in school is even harder, mainly because they often show deficient skills in the German language (Pochert, 2001). Poor linguistic proficiency in German is listed as one central reason for the close interrelation between reading abilities and socioeconomic and ethnic background, as well as one of the most important predictors for later school failure in children with GaS or from underprivileged families (Esser, 2006). The close

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interdependence between difficulties in acquisition of reading and writing with linguistic skills has been subject of many studies (Snowling & Hulme, 2005). On the one hand, it was shown that children with higher levels of oral proficiency and a wider range of vocabulary are able to read more easily than their less proficient peers, which applies to mono- and bilingual children (Bialystok, 2007). On the other hand, language difficulties place children at risk for literacy problems (e.g. Bishop & Snowling, 2004; Catts, Fey, Tomblin & Zhang, 2002; Lonigan, Burgess & Anthony, 2000) - reading comprehension, in particular, is closely linked to language abilities (Snowling & Hulme, 2005; Perfetti, Landi & Oakhill, 2005).

Generally, difficulties in reading emerge at an early stage and are very persistent (e.g. Klicpera & Gasteiger-Klicpera, 1993; Scarborough & Parker, 2003; Stanovich, 1986). They can be attributed to specific affected components of reading abilities: some children have difficulties in phonological recoding, whereas others command problems in reading comprehension (e.g. Caccamise & Snyder, 2005). Therefore, interventions have the greatest success when they identify at-risk-students as early as possible and provide individual learning support (e.g. Gasteiger-Klicpera & Fischer, 2008; Grimm et al., 2004; Helf & Cooke, 2011; Hurry & Silva, 2007; Leppänen, Niemi, Aunola & Nurmi, 2004; Swanson, 1999; Torgesen, 2005).

Basically, concerning the effects of reading-interventions, the choice of setting (single intervention, small group intervention, parenting instruction, school class), the intensity of the intervention (numbers of remedial lessons, etc.) and the type of target group (e.g. only children with difficulties in reading, children with German as second language) seem to be essential (see also Antoniou & Souvignier, 2007). In German-speaking countries, symptom-specific intervention programs with children with dyslexia were evidenced as more effective than function and phonological awareness training. Furthermore, the person in charge of the intervention (teacher, authors of the paper, etc.) affected the outcome. It could be shown that longer intervention periods (more than 20 weeks) with the teacher obtained the highest effects (Ise, Engel & Schulte-Körne, 2012).

Especially for the use in individual treatments, numerous programs concerning the acquisition of literacy have been initiated in German-speaking countries. (e.g. the syllable-based and phonetic gestures-supported “Kieler Leseaufbau” by Dummer-Smoch & Hackethal, 1986; the morpheme-based training “Morpheus” by Kargl & Purgstaller, 2010; differentiate training in reading for fifth-graders “Leseförderung in Kompetenzstufen” by Fischer, 2008; strategy-based training for third-graders “Leseprofi” by Munser-Kiefer & Kirschhock, 2009).

However, only few evaluations of theoretically sound and evidence-based intervention programs, which consider children with GaS in an adequate and sufficient way, have been completed (Gasteiger-Klicpera & Fischer, 2008).

2 Purpose and research questions

This article analyses the effects of a small group implementation of the intervention program LARS (see also Schwab & Oswald, 2011) that was designed to improve reading skills in children with German as a first or second language. In this pilot study, it was decided to treat the eleven poorest readers outside the class to ensure

individual support. An intensive, systematic reading intervention should enable students with low literal and/or linguistic skills in the German language to improve these skills in a notable way.

3 Method

The study is a multiple case study using baseline and post-intervention measures. At the beginning of November 2011 (test time 1), all children from six second grade classes of two primary schools were tested. Both schools exhibited a similar catchment area and related socioeconomic and cultural background of parents and children. The children in both schools were from families with similar low socio-economic status and approximately 70% were children with GaS.

After the assessment, eleven children with low percentile ranks ($PR < 5$) in the word reading subtest of the *SLRT II* (Moll & Landerl, 2010) were chosen to receive a small group intervention from January to May 2012. In June 2012 (test time 2), the reading and language achievement of these children was examined again.

3.1 Sample

Eleven children, chosen because of their diagnosed deficit in reading fluency (inclusion criteria: word-decoding of the *SLRT II*; Moll & Landerl, 2010; percentile ranks below 5) participated in the intervention (small group treatment with not more than three children per group). On average, they were 8.23 years old ($SD = 0.696$).

The following Table 1 gives an overview of the included children. Five of the children (DO, JA, MU, NA, NI) have special educational needs (SEN). DO is diagnosed with autism and the others with learning disability. AJ and KH were supposed to be assessed for SEN soon, due to their low academic achievement. For six of the eleven children (DA, DO, JA, JO, NA, NI) German was their mother language; the remaining five learned German as a second language (all of them with different first languages). Concerning the intellectual abilities, the children did not have comparable results in the *Cultural Fair Intelligence Test (CFT-1: Cattell, Weiß & Osterland, 1997)*. The intelligence (IQ, age-norm) of four of the children (AJ, KH, NA and NI) was below average, whereas the others were in the average range.

TABLE 1. Sample Characteristics in Alphabetical Order.

child	sex (m – masc., f – fem.)	age	school	SEN (special educational needs)	GAS (German as a second language)
AJ	m	8.83	1	no*	yes
DA	m	8.52	1	no	no
DO	m	7.67	1	yes	no
EL	f	7.58	2	no	yes
EM	f	7.48	1	no	yes
JA	f	8.72	2	yes	no
JO	m	7.42	1	no	no
KH	f	9.21	2	no*	yes
MU	m	7.21	2	yes	yes
NA	f	8.80	1	yes	no
NI	m	8.52	1	yes	no

*These children will be assessed for SEN soon due to their low academic achievement.

3.2 Instruments

The reading part of the *Salzburg reading and spelling test* (SLRT II: Moll & Landerl, 2010) was deployed to measure the acquisition of literal competencies. As an individual reading test, it proves reading fluency of words and non-words. It allows a separate assessment of phonological recoding and lexical reading. Based on the reached percentile ranks in the subtest *word reading*, the children were selected for treatment.

The reading comprehension was measured with the *reading comprehension test for first to sixth graders (ELFE 1-6)*: Lenhard & Schneider, 2006). This test identifies reading comprehension on the word-, sentence- and text-level. The children's active and passive vocabulary was compiled with the short form of the *vocabulary- and word finding-test for 6 to 10 year-olds (WWT 6-10)*: Glück, 2007). Their grammar knowledge was measured with the subtest of the *Potsdam-Illinois test for psycholinguistic abilities (P-ITPA)*: Esser, Wyschkon, Ballaschk & Hänsch, 2010). The children's mother language and the information about SEN were collected through teacher information, while intellectual abilities were tested with the *Cultural Fair Intelligence Test (CFT-1)*: Cattell, Weiß & Osterland, 1997).

3.3 Description of the intervention

The support was offered for five months on average three times a week for 50 minutes. An intervention time of 30 to 50 treatment hours was reached, depending on individual absences. The treatment decision was taken depending on the level of reading proficiency. The children were taken out of class and fostered in small groups with not more than three children in separate rooms. They were grouped according to their reading abilities, class membership, mutual sympathy and behavioral peculiarities. For instance, DO and NA, members of the same class, had a similar profile of reading disability. Therefore, these two, for instance, were supported together, because, as their reading performance was comparable, none of them had to wait for the other while performing reading tasks. The implementation of the intervention happened through trained project members, supervised by the project leaders. The reading intervention (see also Gasteiger-Klicpera & Fischer, 2008; Schwab & Oswald, 2011) is based on a specific diagnosis of the different components of reading abilities (phonological recoding, lexical reading and reading comprehension). The intervention also takes language competencies into account, as especially for weaker readers it is assumed, that vocabulary work can improve reading abilities (Souvignier & Antoniou, 2007).

Notably for weak readers, the possibility of a shared access to literature increases the opportunities for participation and can enhance the quality of life (Browder, Gibbs, Ahlgrim-Delzell et al., 2009). To offer the children these opportunities and to ensure the relevance of the texts and the contained vocabulary, the used texts were oriented towards the main subjects of class instruction.

The intervention hours were divided into vocabulary units and predominantly reading units. During vocabulary units, the children worked on hidden object pictures and picture cards showing appropriate, linguistically and thematically controlled vocabulary. The syllabic principle, used as a hint for visual segmentation of the words and therefore as a support for word reading, was conducted for each word and repeated various times. With the help of the supporting project member, the children had to write the word matching the picture on the backside of the card. These practiced words were taught to facilitate the following reading tasks, as they appeared in the texts the children had to read during the reading units.

Within these reading units, the children worked with the supporting project member, using texts and corresponding tasks adjusted to their ability-levels. After the compulsory reading of the text including adequate tasks the children had to solve, the pupils could sometimes choose which texts/books to read on their own in order to allow some space for self-determination.

3.4 Scoring and Analyses

This explorative multiple case study uses baseline and post-intervention measures obtained by standardized tests. Due to the small number of participating students, no statistical instruments were used for the data analysis. The differences of percentile ranks (reading skills, vocabulary) and raw scores (grammatical skills) of pre- and post-test abilities are used to determine changes in reading and linguistic skills in each child.

4 Results

Above all, it is worth mentioning that reading abilities of most of the children improved substantially after the intervention compared to the pretest abilities.

The results of the reading tests (*SLRT II* and *ELFE*) followed by the linguistic tests (*WWT* and subtest *grammar* of the *P-ITPA*) are presented. Children with GaS are marked in the tables and figures.

4.1 Reading abilities

In order to be included in this case study, it was essential for all of the children to have initial deficits in decoding, measured by the *word reading* subtest of the *SLRT II*. The mean score of the percentile ranks in the *word reading* subtest of the *SLRT II* was 2.63 (SD = 2.23). However, regarding the reading competencies at test time 1, the children did not only show impaired word reading but also impaired reading of non-words. The percentile ranks in the *non-word reading* subtest of the *SLRT II* were in the mean 7.29 (SD = 3.96).

At post-intervention measures, all children except one (NI) showed gains in these reading tests. They read more words (mean score of percentile ranks at posttest 17.04, SD = 11.57) and non-words (mean score of percentile ranks at posttest 28.92, SD = 17.39) fluently in one minute than they did at test time 1. The gains of AJ, DO, EM, KH and MU even resulted in average reading fluency (in both: word and non-word reading). At test time 2, EL, JA and NA showed non-word reading skills within the average range, whereas word reading achievement stayed below average. The gains of these three children can be described as moderate. Only three of the children, DA, JO and NI, still performed below average at test time 2. Table 2 shows the reached percentile ranks in the reading fluency test at pre- and posttest, whereas Figure 1 gives an overview of the individual changes in reading abilities tested with the *SLRT II* (decoding, reading fluency).

TABLE 2. Performance in the reading fluency test *SLRT II*, showing the pre- and posttest values. The children are grouped in children “with substantial gains”, “with slight to moderate gains” and “with no gains to deterioration”; within the groups they are in alphabetic order. Performance below average range is marked with *.

child	pretest		posttest	
	word reading PR (SLRT II)	nonword reading PR (SLRT II)	word reading PR (SLRT II)	nonword reading PR (SLRT II)
AJ (GaS)	1-2*	3*	16-19	38-43
DO	4-5*	10-12*	20-23	32-35
EM (GaS)	1-2*	6*	16-19	57-59
KH (GaS)	1-2*	<2*	24-29	44-47
MU (GaS)	<1*	7*	39-41	38-43

EL (GaS)	1-2*	7*	4-8*	15-19
JA	1-2*	7*	4-8*	32-35
NA	3*	8*	4-8*	15-19
DA	1-2*	8*	1-3*	8-11*
JO	4-5*	10-12*	12-15*	8-11*
NI	<1*	<2*	1-3*	1-3*

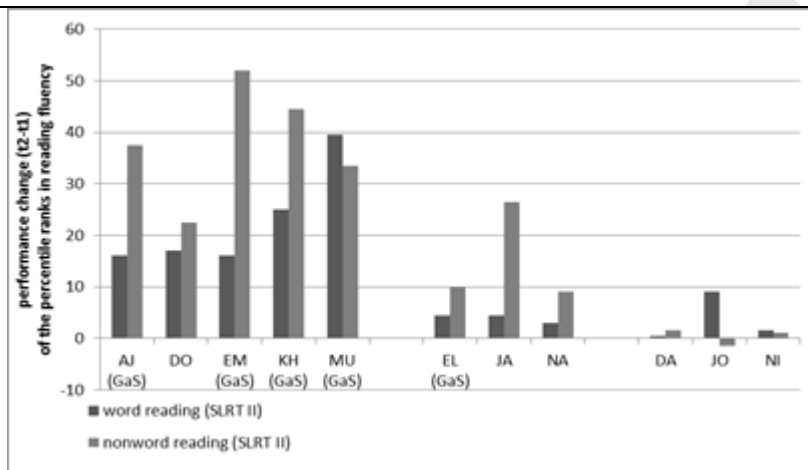


FIGURE 1. Performance gain or deterioration (t2-t1) in the reading fluency test *SLRT II* separated for the involved children. The children are grouped in children “with substantially gains”, “with slight to moderate gains” and “with no gains to deterioration”; within the groups they are in alphabetic order.

Besides reading fluency, also reading comprehension was impaired in all of the children at test time 1. In the reading comprehension test *ELFE*, the mean score was 4.46 (SD = 4.47) percentile ranks.

After the intervention, the reading comprehension improved in most of the children, but only in a moderate way (mean score of percentile ranks at posttest 7.93, SD = 13.05). Only one child, EL, showed substantial gains. The reading comprehension skills of all children, except those of EL, remained below average range after intervention. JA’s, JO’s and NI’s comprehension skills seem to have deteriorated. But regarding the raw scores, all of them managed to respond to some more items at test time 2 compared to test time 1.

The following Table 3 shows the reached percentile ranks in the reading comprehension test *ELFE* at pre- and posttest, whereas Figure 2 gives an overview of individual changes (performance gain or deterioration between the two measurement points) concerning reading comprehension.

TABLE 3. Performance in the reading comprehension test *ELFE* at the pre- and posttest measure. The children are grouped in children “with substantially gains”, “with slight to moderate gains” and “with no gains to deterioration”; within the groups they are in alphabetic order. Performance below average range is marked with *.

child	pretest		posttest	
	reading	comprehension	reading	comprehension
	PR		PR	
	(ELFE)		(ELFE)	
EL (GaS)	1.9*		47.9	
AJ (GaS)	1.9*		3.8*	
DA	1.9*		2.1*	
DO	1.9*		3.8*	
EM (GaS)	1.9*		5.5*	
KH (GaS)	1.9*		2.1*	
MU (GaS)	11.2*		14.4*	
NA	1.9*		2.1*	
JA	14.5*		5.5*	
JO	9*		3.8*	
NI	3.6*		2.1*	

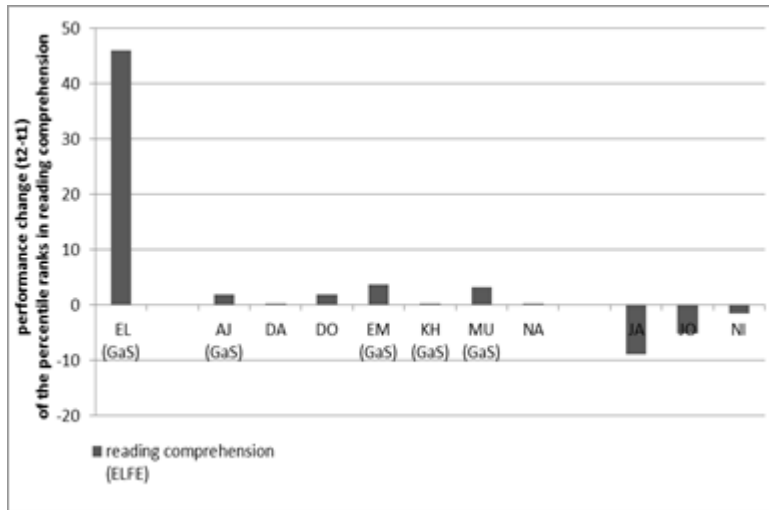


FIGURE 2. Performance gain or deterioration (t2-t1) in the reading comprehension test *ELFE* separated for the involved children. The children are grouped in children “with substantially gains”, “with slight to moderate gains” and “with no gains to deterioration”; within the groups they are in alphabetic order.

4.2 Language abilities

As the percentile ranks of the following tests can hardly be interpreted, raw scores of the vocabulary and grammar tests will be presented.

Referring to the results concerning linguistic skills, the majority of the children showed slight to moderate gains after the intervention. But the performance of nearly all children was below the average score before and after intervention.

As for the vocabulary skills, JO is the only one whose expressive and receptive vocabulary is in the average range at both test times. All the other children had expressive and receptive vocabulary-limitations before and after intervention.

Concerning the post-intervention measures, the majority of the children (except KH and NI) showed slight gains in expressive vocabulary, but only JO showed average achievements. Referring to the receptive vocabulary, AJ is the only child whose abilities improved substantially. Slight to moderate gains were shown in DA, EL, EM, JA, JO, KH and MU, whereas NA and NI showed constant results. DO’s performance slightly deteriorated.

The following Table 4 shows the reached raw scores in the vocabulary test *WWT* at pre- and posttest. Figure 3 gives an overview of the individual changes (performance gain or deterioration between the two measurement points) in vocabulary skills.

TABLE 4. Performance in the vocabulary test WWT at the pre- and posttest measure (maximal raw score = 40). The children are grouped in children “with substantially gains”, “with slight to moderate gains” and “with no gains to deterioration”; within the groups they are in alphabetic order. Performance below average range is marked with *.

child	pretest		posttest	
	expressive vocabulary raw scores (WWT)	receptive vocabulary raw scores (WWT)	expressive vocabulary raw scores (WWT)	receptive vocabulary raw scores (WWT)
AJ (GaS)	0*	1*	1*	22*
DA	10*	33*	17*	35*
EL (GaS)	1*	17*	3*	23*
EM (GaS)	3*	23*	5*	27*
JA	0*	29*	7*	31*
JO	24	36	30	40
MU (GaS)	0*	12*	1*	18*
NA	2*	29*	7*	29*
DO	5*	31*	8*	28*
KH (GaS)	0*	16*	0*	17*
NI	15*	31*	15*	31*

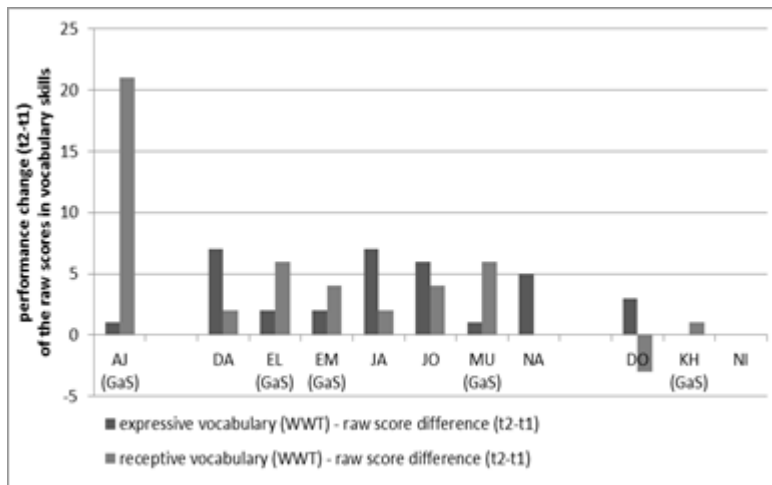


FIGURE 3. Performance gain or deterioration (t2-t1) in the vocabulary test *WWT* separated for the involved children. The children are grouped in children “with substantially gains”, “with slight to moderate gains” and “with no gains to deterioration”; within the groups they are in alphabetic order.

Just as in the vocabulary test, there can be seen a mixed picture concerning the results of the grammar subtest of the *P-ITPA*, too. Grammatical deficits at test time 1 could be found in all children except DA, JO and NI. Out of these three children only JO and NI could reach the average range at test time 2 though.

Three children (DO, EL and JA) showed substantial gains in grammar skills and four other children (AJ, EM, KH, MU) showed slight to moderate gains. NA’s skills remained constant. Another three of the children (DA, JO and NI) achieved smaller raw scores compared to test time 1.

Table 5 shows the reached raw scores of each child in the grammar subtest of the *P-ITPA* at pre- and posttest. Figure 4 gives an overview of the individual changes (performance gain or deterioration between the two measurement points) in grammatical skills.

TABLE 5. Performance in the grammar subtest of the *P-ITPA* at pre- and posttest. The children are grouped in children “with substantially gains”, “with slight to moderate gains” and “with no gains to deterioration”; within the groups they are in alphabetic order. Performance below average range is marked with *.

child	pretest	posttest
	grammar raw scores	grammar raw scores
	(P-ITPA)	(P-ITPA)
DO	17*	37*
EL (GaS)	7*	19*
JA	10*	24*
AJ (GaS)	0*	1*
EM (GaS)	14*	19*
KH (GaS)	11*	14*
MU (GaS)	6*	11*
DA	39	37*
JO	49	40
NA	19*	19*
NI	48	46

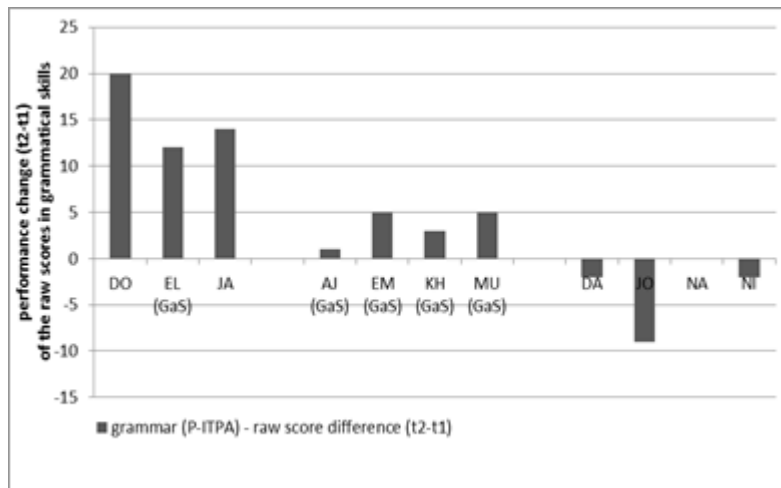


FIGURE 4. Performance gain or deterioration (t2-t1) in the grammar test of the *P-ITPA* separated for the involved children. The children are grouped in children “with substantially gains”, “with slight to moderate gains” and “with no gains to deterioration”; within the groups they are in alphabetic order.

5 Discussion

This article examined the effects of a small group implementation of the intervention program LARS which was designed to improve reading skills in children with German as a first or second language. Eleven second graders, aged 7 to 9 and chosen due to their very poor reading skills, took part in this study.

Before and after the intervention period, reading and linguistic abilities were measured. Each of the nearly 50 intervention hours was divided into a short vocabulary unit and a reading unit. Following the intervention, all of the participants showed learning gains regarding reading fluency and most of them also in reading comprehension. Referring to reading abilities the study indicates that the treatment was effective for all of the participants. An increase could particularly be observed in the decoding abilities.

However, regarding language skills, no homogenous substantial effects were shown. These findings correspond largely with the results of the study, which analysed the intervention that was implemented at the same time in classroom settings (see also Schwab, Seifert & Gasteiger-Klicpera, in preparation). Within this classroom study, a systematically and differentiated language and reading enhancement created a possibility to further develop the literal competencies for children with difficult starting conditions, but not their language abilities.

An interesting result in the present study is that especially children with GaS benefited from the intervention, as they reached higher gains in reading competencies and gained more insight in the German grammar than children with German as a first language. The group of children with GaS reached substantially or at least slight to moderate gains, and all of them benefitted in reading and grammar. This advance in linguistic gains of the children with GaS complies with our findings concerning the class treatment, too (see also Schwab, Seifert & Gasteiger-Klicpera, in preparation). In general, the present finding shows that children with very poor reading performance (especially the ones who learn GaS) can benefit from a small group intervention that takes their initial learning level into account.

There are some limitations imposed to the interpretation of the effects. The first limitation concerns the choice and the size of the sample. The results apply to a very specific sample, thus they are not generalizable for average second grade children (the examined children belonged to classes with an obvious higher amount of children with GaS, since such a sample was selected for this study). Of course, the small size of the sample also restricts the possibility to generalize the effects.

Furthermore, since it was not possible to compare these findings to a control group with comparable poor reading skills receiving another type of reading treatment or getting no treatment at all, it is not possible to claim with certainty that the provided learning environment was more effective than the usually received classroom instruction. However, the recent meta-analysis by Ise, Engel and Schulte-Körne (2012) showed that symptom-specific and systematic reading interventions, such as the one proposed, are effective.

Even though some gains could be shown in the linguistic competencies, none of the children really profited remarkably. At posttest only one child (JO) reached the average range in the vocabulary and grammar test, but his linguistic skills at pretest had already been within average range. The absence of substantial language gains needs to be discussed, especially regarding the intervention's focus on vocabulary. Probably this finding has to be ascribed to the fact that the vocabulary contained special words with partly low frequency that happened not to be relevant in the children's linguistic daily routine. Moreover, the practiced vocabulary was excluded from the assessment. To avoid training effects, none of the words of the *WWT* or of the *P-ITPA* were used in the intervention. There was also no specific grammar work implemented in the intervention. Possibly, the language improvement is restricted to the involved, practiced vocabulary.

Due to the broad approach, the intervention exhibits restrictions. It is not possible to ascertain which specific part of the program (e.g. systematically vocabulary work, improvement of reading fluency, implementation of different strategies to improve reading comprehension) is primarily responsible for the children's progress. The success can be attributed to different intervention-strategies, which were addressed coincidentally. Multiple components of reading were supported to lead to positive effects (see e.g. Guthrie, Wigfield, Barbosa, Perencevich, Toboada, Davis et al., 2004; Wigfield, Guthrie, Perencevich, Taboada, Klauda, McCrae et al., 2008). Altogether it is presumed that the program's effectiveness is especially attributable to the differentiated material which had been adapted to the children's initial skills. This enables the children to work individually on their specific level and allows them to use their reading time more efficiently than in the other lessons.

Although the results of this study must be interpreted carefully, the current intervention program seems to constitute an effective reading intervention program, which can be used in single or small group settings, and can also easily be implemented into daily lessons (see also Schwab, Seifert & Gasteiger-Klicpera, in preparation). The recent debate about inclusion highlights the importance of individualization and differentiation within the classroom. For future work, it is therefore recommended to implement such programs in classroom settings in order to develop the literal competencies of all children and enable children with difficult starting conditions to take part in class instruction.

The positive findings of this study are encouraging. Within a follow-up study it could be proven if it is possible to maintain the gains.

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Reducing Language Obstacles to Students' Use of Historical Digital Libraries

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Abstract

Integration of digital libraries into school education has been explored for almost two decades now, with a primary focus on fully searchable contemporary materials helping to shift the emphasis in science classes from instruction and memorization to inquiry. The advent of digitization of historical texts created a possibility for a similar shift in history (and other) classes. However, to make historical texts fully searchable poses a major problem in languages with a long history of sound changes and spelling reforms. The paper describes solutions to be implemented in a current Czech historical digital library project both for educational and public use.

Keywords: historical digital libraries, information retrieval, historical texts, hyperlemma

1. INTRODUCTION

Seen in a historical perspective, digital libraries (DLs) – extensive collections of digitized texts, maps, images and other content – have been one of natural developments based on availability of wide-ranging, ever-growing quantities of digital data. Unlike the internet as a whole, most DLs are more specialized (primarily including factual materials which are, in a broad sense, scientific, cultural or educational) and aim at providing the users with advanced library-style organization of the data as well as with more sophisticated tools allowing information retrieval (IR) at different levels of generalization.

The use of digital libraries in education has been explored, assessed and experimented with for almost two decades now, with a particular focus on science classes where the modern multimedia materials and fully searchable science-oriented texts have been justifiably expected to help in shifting the emphasis from didactic instruction and memorization to inquiry and investigation. Even at a very early stage, it has been observed that “on-line resources play a key role in the inquiry process: the immediacy of finding relevant, multimedia resources make for a more engaging activity; we are seeing an intensity and involvement of the students that is too often missing in the more traditional didactic-style classrooms” (Soloway, 1996).

With the advent of digitization of historical printed materials, similar prospects arose for a similar shift of emphasis in history classes. Obviously, the accessibility of fully searchable historical texts such as newspapers, magazines, letters or diaries has the potential both to deepen students' general history awareness through inquiry of authentic documents reflecting everyday context of major historical events and to incite their interest in local history, and in other than history classes DLs may well spur students' concern about authentic period background

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of and contemporaneous reactions to a variety of historical markers and changes ranging from inventions and discoveries to constitutions, groundbreaking rulings and laws to styles and works of art.

Understandably, the use of historical DLs both in history classes and elsewhere has its limitations, the most general one being the virtual nonexistence of factual texts in most languages just a few centuries back in time. However, even where old textual materials are available the building of a library including historical texts has to deal with a number of rather specific problems if it is intended to be more than just a collection of images of individual pages and aims at providing a state-of-the-art access to information in digitized historical documents through making full-text searching possible. Generally speaking, these are problems of two kinds, namely largely technological problems caused by the age of the medium (e.g. ageing and crumbling of paper, low quality of many old prints, obsolete typefaces etc., all of them hindering optical character recognition, OCR) and linguistic problems caused by the differences between the contemporary language and the language found in the documents, which are problems hindering information retrieval (IR) from the OCRed texts. Conceivably, both types of problems get the more complex the older are the digitized texts, with documents created more than half a millennium ago (before the advent of typography) remaining beyond the limits of contemporary OCR as much as most of perfunctory handwritten documents of today.

The focus of this short paper is on the latter set of problems, i.e. the problems ensuing from language differences between modern and historical texts.¹ In a work-in-progress manner, the paper presents solutions to two types of linguistic IR problems elaborated within the five-year project *Tools for Accessibility of Printed Texts from the 19th Century* coordinated by the National Library in Prague, the Czech Republic,² but in spite of this rather specific material basis, the authors believe that the presented solutions are essentially general in nature and can be applied in other digital libraries including historical documents.

The two types of linguistic IR problems addressed in the paper are

- problems caused by differences between the modern Czech language and 19th-century Czech in the area of vocabulary, spelling, phonology and morphology, and
- problems caused by coexistence of two or more spelling and/or phonological variants of words, in modern and/or historical Czech.

The two types of problems are similar in their effects, namely that the body of 19th-century-specific words and forms are not retrieved if a standard query is performed with existing IR software using modern Czech vocabulary, modern Czech spelling and modern inflected forms of words. However, from the point of view of IR, each of the two types of problems has its specific features, and calls for a specific solution. In the first case, the workable solution seems to be so-called hyperlemmatization, an extended concept of lemmatization; in the latter case, most problems can be removed by implementation of modified search procedures. The following two sections describe the two solutions in more detail.

¹ Problems of this kind remain virtually unaddressed even in such large-scale projects as Google Books, Hathi Trust Digital Library, Open Library, the University of Michigan Collection and others: in all of them special queries are needed to retrieve the singular and plural forms of a noun (e.g. *advancement* and *advancements*) or their historical spellings (*advancement*, *advancemente*, *advancements*, *advancementes*). (Test searches were performed at <http://books.google.cz/books>, <http://www.hathitrust.org>, <http://archive.org/details/texts>, <http://quod.lib.umich.edu/g/genpub?page=simple>.)

² The project is part of the of the *Applied Research and Development of National and Cultural Identity Programme (NAKI)* funded by the Czech Ministry of Education. For details see <http://www.isvav.cz/programmeDetail.do?rowId=DF> or <http://kramerius-info.nkp.cz/projekt-naki>.

2. LEMMATIZATION AND HYPERLEMMATIZATION

Lemmatization has been successfully used for decades in corpora of contemporary languages to group the inflected forms of a word under one lemma (the canonical or citation form, also used as a headword in dictionaries). Thus, for example, through lemmatization the English forms *speak*, *speaks*, *speaking*, *spoke* and *spoken* are all grouped under the lemma *speak* (although the present paper deals with problems connected with IR from historical Czech texts, English examples are used in the following, wherever possible, to make key points clearer). The linking of every word form in the text with its lemma then makes it possible to retrieve all the instances of all the inflected forms of a word by performing just one lemma query.

The newer concepts of hyperlemma and hyperlemmatization appeared about 5 years ago, when lemmatization of diachronic corpora (i.e. corpora designed to cover the entire history of a given language) started to be discussed (see Kučera, 2007). Understandably, the discussion centered on similar problems that have recently come to the foreground in connection with historical DLs (see, above all, *IMPACT 2011 Project Periodic Report*). In highly inflecting languages like Czech, in which some words may have had more than one hundred inflected forms in the past (moreover, with many of the forms existing in several phonological and/or spelling variants), it soon became obvious that information retrieval without some kind of historical lemmatization could hardly accommodate anyone whose queries are not limited to particular spelling or phonological variants of particular inflected forms used in a particular period in history. Also, it became evident, that the traditional strictly morphological concept of the lemma, limited to inflected forms of words, is a solution to only part of the problem.

Unlike the lemma, the hyperlemma (identical with the canonical contemporary form of the word) groups together not just the contemporary and past inflected forms of the word, but also its present and historical spelling and phonological variants. As a result, a single hyperlemma query (e.g. *speak*, to return to the example above) would retrieve not just the forms *speak*, *speaks*, *speaking*, *spoke*, *spoken* but also the historical inflected forms *speaketh*, *speakest* and their spelling variants such as *speeketh*, *speekest*.

Despite the fact that its concept originated in the domain of corpus linguistics, the hyperlemma may become even more important to historical digital libraries than to diachronic corpora. The main reason is that the typical user of a diachronic corpus is a linguist who is searching for linguistic information and can be expected to have a sufficient knowledge of the history of the orthography, sound changes and historical grammar of the language, so that her or his queries are mostly exact linguistic *known-item* queries. In other words, for him or her the hyperlemma may not be an absolute necessity; it is what makes some of the queries (those focused on words as lexical units, not just their particular form or forms) more efficient and less time-consuming.

On the other hand, typical users of a digital library are students and other interested persons searching for all kinds of information, whose motives range from unspecified curiosity to highly technical interests, but mostly are not based on a deeper knowledge of the history of the language. Their queries may be *fact* queries or *known-concept* queries, but typically are not *known-item* queries in the strict sense of the word, because such users most probably are not aware of the fact that the words representing the formal statements of their information needs (e.g. the search strings *emulation* or *speak*) used to be spelled differently (*aemulation*) or had archaic forms like

those quoted above (*speaketh* etc.). Thus, for typical users of historical DLs, the hyperlemma is what makes the searching of historical documents possible, not just more efficient. The statement may seem rather exaggerated in the context of languages like English (that is, highly analytical languages with limited morphology and highly traditional orthography), but is quite realistic in the context of languages like Czech (that is, highly inflecting languages with a long history of sound changes and spelling reforms). To illustrate the point: three deep-cutting spelling reforms were implemented in Czech during the 19th century, resulting in a fundamental change in the use of the high-frequency letters *g, j, w, y, ý*, the replacement of the digrams *au* and *ff* respectively with *ou* and *s*, an introduction of the letter *í* and re-introduction of the letter *v* into the Czech alphabet. Consequently, to search the 19th-century OCRred documents for any one of the thousands of words/forms including the letters affected by the reforms is virtually impossible without either a working knowledge of the reforms or hyperlemmatization. By way of another example: to search the 19th-century texts for words like *souvisící* ‘related’ would require the following six queries (*souvisící, sauwisící, sauwisjčj, sauwisjčj, sauwisýčý, sauwisýčý*), and even so the six queries would retrieve just one of the inflected forms of the word, not the majority of them (*souvisícího, souvisícímu, souvisícím, souvisících, souvisícími; sauwisícího, sauwisícímu...; sauwisjčjho, sauwisjčjmu... etc.*).

An essential prerequisite for hyperlemmatization is the existence of extensive lexica, each representing as complete a period-specific vocabulary as possible, with words expanded into complete paradigms, each form spelled in the period-specific orthography/orthographies and linked with the corresponding modern hyperlemma. So far few such lexica have been compiled, but a series of tests recently run on nine languages under the European IMPACT program has convincingly shown that “the deployment of historical lexica improves the state-of-the-art of both OCR and IR” (see *IMPACT 2011 Project Periodic Report*, 12).

In the Czech case, four historical lexica are being compiled to make hyperlemma queries possible in OCRred 19th-century texts, each lexicon covering one of the four periods (1800-1809, 1810-1843, 1844-1849, 1850-1900), the boundaries of which are primarily based on the introduction of spelling reforms in 1809, 1843 and 1849. However, it is becoming obvious that three more lexica will have to be compiled to cover the transitional periods between each pair of the reforms, i.e. the periods when both the pre-reform and post-reform spellings were used in printed documents.

The four lexica currently encompass more than 300,000 word forms each, but still are far from being representative. Existing experience shows that the compilation of a historical lexicon is a long-term undertaking which includes the following steps:

- compiling of a list of headwords found in historical dictionaries and wordforms found in an extensive sample of texts,
- assigning a modern lemma to each headword on the list,
- distributing the headwords into groups according to the way they inflect,
- using paradigm-specific utilities to expand the headwords into paradigms, with each form of the paradigm spelled in the period spelling and followed with the lemma,
- continual extending of the initial/core lexicon with proofread words and forms attested in newly OCRred texts,
- gradual discarding of the words and forms which remained unattested in OCRred texts and proved to be sources of noise in IR. (The unattested words are often unsuccessful coinages which were included in the period dictionaries obviously to show the potential of Czech, which in the early 19th century was still competing with German and struggling for recognition as a full-fledged cultural language.)

The last two of the above six steps characterize the present stage of development of the lexica for the digital library of 19th-century Czech texts.

3. HANDLING COEXISTING VARIANTS

In addition to the four period lexica under construction and three more lexica planned for the transitional periods between the spelling reforms, two more wordlists are being compiled in order to deal with problems caused by synonymy at its lowest level of phonological and spelling variants. Two problematic cases have been considered so far, namely (1) lemmata existing in two or more phonological and/or spelling variants, all of them more or less equally frequent (“balanced coexistence”), and (2) lemmata existing in two or more phonological and/or spelling variants, one of which is modern and the other archaic or extremely rare (“unbalanced coexistence”). From the point of view of students and other typical users of DLs, each of the two types of variants presents a slightly different problem in IR.

- In the first case of “balanced coexistence”, the typical user is most likely familiar with the variants of the lemma (e.g. the English *ax/axe*, *licence/license*, *omelette/omelet*, *whiskey/whisky disc/disk* etc.), but (s)he may not realize their existence at the moment of formulation of the query. In such a case the query would include just one of them and, consequently, part of the information in the documents would be lost. The same occurs if the user searches for an archaic word (s)he happens to know but has no knowledge of its variants (e.g. English *auncestry/auncestrie* ‘ancestry’ or the Czech *čiv/čiva* ‘nerve’). Therefore, a list of such balanced variants is being compiled to be used by the search program in the future to expand users’ queries. At the moment the general idea is that, by default, any time one of the coexisting balanced variants of the lemma is used in the query, all of its variants will be retrieved and the user will be explicitly notified about the extension of his/her query. However, he or she will be given the option to override the default and search for just one particular variant of the lemma, or to revert to string-matching queries.
- In the case of unbalanced coexistence of two or more variants of a lemma, the typical user will most likely be familiar with the modern/frequent variant only and will have no notion of the archaic or rare variants (e.g. the English *cruelty – crueltie/cruelly/cruelltie*, the Czech *francouzština – franština/frančina/frančtina* ‘the French language’ etc.). In this case, by default, all the variants will only be retrieved if the modern/more frequent variant is used in the query. On the other hand, if the query includes an archaic/rare variant, only this variant will be retrieved by default, the assumption being that the user has a deeper knowledge of the period language and has a reason to search for just that variant. As in the case of balanced variants, (s)he will have the option to override the default or to use a string-matching query instead.

The reasoning behind both of the modifications of the queries (and, in the end, also behind lemmatization) is that the typical user of a digital library is searching for factual information, not for specific forms of words of which he may not have any knowledge.

4. Conclusion

With a view to the presumed needs of students and other typical prospective users of a Czech historical digitized library, workable solutions to two types of problems have been designed and are currently elaborated to reduce language obstacles to information retrieval from OCRed 19th-century Czech prints. Although all of the proposed solutions make use of language-specific historical lexica and word lists, they are based on general principles applicable to analogous obstacles to information retrieval from historical texts digitized and OCRed in other languages. Moreover, the lexica and lists are definitely going to have other uses than those described above. In the foreseeable future, each of the 19th-century Czech lexica currently being compiled will include an extensive, highly representative record of spelling, phonological and grammatical period-specific forms, which can be used to generally enhance the performance of OCR. Also, the lists of synonymous variants will be ready

to be utilized in future historical ontologies to markedly extend the possibilities of known-fact retrieval from historical texts.

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Reflections ecole and style issues of Turkish photography to photography education

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Abstract

Photography adopted very quickly from the second half of the 19th century in Ottoman Empire. However, it was settled as an institutionally in the context of a university or an art ecole from the late of 1970's. Throught the period until today, intermittents and the problematic progress of ecole and style concepts in the sense of both individual and institutional manners affected the photography education. The reasons of these intermittents are other crucial concepts should be examined in economic, political, cultural and artistic senses. Photography education institutions, which are established in this context, created their education programs within the framework of either modern western ecoles or current trends. This study examines the reflections of Turkish photography attitude to photography education, which is still immature or has not a particular ecole or style, for some related institutions.

Keywords: Turkish Photography, Ecole, Education, Institution

1. Introduction

The meeting of Turkey with the photography, or the formation then, the Ottoman Empire, was not very late. The photography entered the Ottoman lands with the photography house opened by Italian Carlo Naya in Beyoğlu in 1945, just after the invention of the photograph had been announced in Paris Science Academy on 18th of August, 1839 (Özendes, 2013). However, this introduction to the photography was only technical. In other words, photography did not come to Ottoman lands as a result of the cultural developments; neither of transferring the scientific and philosophical thought periods into the technique and nor of the interest of social classes (especially bourgeois class) towards art, science and philosophy. The photography was just a technical outcome. Of course any technique or photography technique can be learned, applied and advanced further by technical means in a short period of time. However, when the creation process of the technique is not understood or adopted, there will be an eclectic issue. That is to say, photography is only the formation of the image put into the frame with one button in seconds. This process is fast and easy. Thus, the process can be completed when the shooting technique and surface arrangement (composition) information are learned. Nevertheless, this kind of training and education will ignore the background. So, we can exemplify this background? The perfectionist art insight and usage of the Renaissance, the concept of orientation of using one's mind brought by the Enlightenment, the eligibility for application of the experimental methods, acceleration of scientific researches; maybe the most importantly, spreading the relation of art with cultural life towards all parts of society.

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Photography has become an extent of the technology as the material response for the importance given towards art, science and philosophy. Thus, this deep-rooted past of the photography does prevent it from being a simply display generator. The fact that the basics of photography had been made in Europe like this helped it became an independent quality during its historical development process and reach a level that it could create various ecoles within. This, of course, was reflected in the photography education. In order to see if such a process formed itself in Turkey, one needs to see the historical development, efforts for identification and the place within the corporal structures.

2.A Historical Look at Turkish Photography

2.1. *Photography in the Last Years of Ottoman Empire and in the First Years of the Republic*

In Ottoman period, with the great importance given by Abdülhamit II towards the photograph, one can observe that the usage of photography was documental. In this sense, the photographs taken were gathered within a general frame such as the architecture of official and cultural institutions, social life and formal ceremonies. An important visual archive has been obtained by gathering the taken photographs within Yıldız Albümleri. The Ottoman Empire met the photography in a way which we can define as fast and efficient, through the photographers supported by the state and non-Muslim photography houses. However, this meeting occurred as family photographs, studio portraits and the documentation of the current status of the state. In other words, we can observe that there were no steps taken towards the institutionalizing of the photography training and no artistic developments.

The interest of Ottoman Empire in photography continued with the foundation of the Republic. The foundation of the Republic of Turkey was important by means of photography but the point of view resembled with the Ottoman Empire; the documentation of state continuum and foundation, the visual documentation of the Nation State during its settlement and development and the publication of these photographs accelerated the usage of photography. It was inevitable for the public to meet the photography in this period. The photography studios occupied by the minorities during the Ottoman Empire period helped 'local' photography studios get more and more common. Of course this occasion arose from the visual data need of the Republic. The photos that had to be taken for the official documents and new identity cards were the precursor of the fact that the public would meet the photography and then the orientation towards the family photographs (Ervin, 2006).

2.2. *First Signs of Institutionalization Operations*

We observe that the photography concept after the Ottoman period had got common via the Village Institutes (1940) before a corporate identity was formed. The objective here was to follow a ecole and formation with the 'Bauhaus Ecole' insight by making art functional. The education provided to be applied to daily practice were towards the technics of photography rather than creating an artistic identity or manner. Thus, in the light of the thoughts of John Dewey, the education that would be converted to practice with a pragmatist attitude would be more beneficial.

A different approach was followed in Community Centers. The photography education attitude in the Community Centers, founded in 1932, was towards focusing the artistic attitude rather than being a technical applier. In this sense, the following saying of Vedat Nedim Tör is about putting the artistic manner of the photography forward: "*To see our neighborhood better, to seek (the beauty) more and to know the realm better*"

(Tör,1940). In addition, Ankara Community Center stated in its Conditions for 2nd Photography Contest that photographs could be documental; however, the artistic ones would be taken into account more (Tör, 1940). Another aim of this saying served the objective to meet the art with the public (Ak, 2001). This objective tried to spread photography (and other practices) to the public, positively influencing the democratization process. In this process, *“In accordance with the populism principle, artists were sent to Anatolia in groups and they had the opportunity to observe the beauties of the realm between 1939 and 1944. Thus, ‘art’ insight began to form within the people through the painting”* (Ervin, 2006). The development of the photography was in line with this insight. It accompanied a romantic perspective towards Anatolia.

To sum up, the ‘artistic’ and ‘functional’ perspectives of Community Centers and Institutions in the early periods were interrupted by technical deficiencies and the fact that political and civil constitutions were not continuous. Likewise, the fact that Community Centers and Village Institutes were discontinued in 1951 and 1954, respectively, prevented the photography from seasoning as documental, experimental, artistic or functional.

2.3. From “A Look at Anatolia” to “Experimental Movement”

Economic and political straits during 1950s and later resulted with the photographers acting in line with ‘social realism’. The immigration to İstanbul and the life in Anatolia were reflected in the photographs. Photographers like Ara Güler and Fikret Otyam documented the social life in İstanbul and Anatolia. In this phase, these photos that reflected their impact in 1960s unfurled the current social status of the people rather than introducing the country. This process continued during 1970s. Following the changing political regime in 1989s, the change in the perspective towards Anatolia resulted with the photography to move into a different aspect. The sounds of experimental photography that rose helped coming up with more personal works in accordance with the critics towards the fact that social documental photos lacked style. Experimental photography, placed between the social documental and communal documental photography were subjected to critics by means of content. It’s known that these types of critics have been made by each movement or insight towards each other. The discussions there were about which method was better. However, the fact that the “*non-existent ecoles*” in Turkey tried to ignore each other rather than creating a *ecole* or identity during the development struggle of photography made it hard the way that the identity would be created or led it to disidentification. During the 1980s, the works sprouting under the name of ‘experimental photography’ did not make Turkish Photography a *ecole*. The material which had been out forward was the repetition of the method or area as personal or a group; not a *ecole*.

3. What the Polarized Kingdom Brought

The reflection of 1980s to the photography was not related only with the emergence of the experimental photography. A strange type of documental photography was being formed as well. During the romantic area until 1950s, we encountered it as a more orientalist version of the photographers seeking towards Anatolia. This perspective, dragging the Turkish photography insight towards an effort to achieve the ‘beautiful’ and towards a self-orientalist perspective; along with the photographers having this insight, setting and directing the photography trend after 1980 affected the corporate education in the same way mostly having been supported with photography contests. It came up as a type where the modern photography technology was being used to its last extent, having been defined by the classical compositions of the ‘documenting’ feature of the documental photography, the appeal of tour photography and the astonishment of the ‘moment photography’. A type depending on the image hunting, the beauty given by the singular photography of which was sublimed with contests, having no context and easily repeatable formulas and expressing opinion as these formulas are the mere correct thing. The source where this insight, defining itself to this extent, had been Anatolia, while in time, it turned out to be exotic places such as India, Morocco, Far East and South America.

“When the villagers with ox carts and donkeys were replaced with the tractors, The Song of Anatolia ended as well. Tractors were not interesting for the ones living in a city. Comprehensive reviews which had been done 50 years ago in the west were not brought up already. It sufficed only to lurk on the turning point. Have you seen any comments from the great social confusion in our cities? Anyone that grabs a camera heads towards the lower classes. Are there no topics at your houses, neighborhoods, work places? Just as you realize your surroundings or your country loses its appeal after 3-4 trips, you hit the road towards the countries that keep their local colors” (Beyhan, 1992).

The only positive aspect of 1980s can be observed to have been the reflection of economical movement to the photography. The fact that the availability of the technical material increased also increased the quality of the applications in the photography. This process, during which quantitative increase was observed but there was no qualitative end, strengthened the singular photography saying and made it open for personal consumption and getting pleasure.

“In the game of subjects (artist, politician, scientist, employer, etc.) and subjects (society, people, masses etc.) played in Turkey so far, instead of trying to find a way regardless of the cost to solve the object, which it has never tried to analyze and explain completely so far (exceptions don’t break the rule), the subjects gave up on this, got cross with the object, closed upon itself and initiate ways towards personal salvation or lost within the object, having ended its own qualifications (qualifications that have not settled, so to say)” (Çoşturoğlu, 1992).

Primarily the fact that the political and civil constitutions were not consistent, that the art could not be transferred to the society, thus there were no civil settlement other than the government can be counted among the main reasons causing this. Consequently, the consistency, of the scientific, artistic and the cultural changes of the communal and personal constitutions is significant. *“In the societies open to evolution and development, ‘parted life’ is a fact of the transition. If the ‘parted life’ period gets longer in a society closed for development and rationality, it turns into a permanent communal disease. The sight in Turkey advances towards a disease as well” (Çoşturoğlu, 1992).*

It is observed that, the identification of the photography is not only about solving the internal constitutional problems within. Firstly, the photography and its artistic aspect should be internalized and defined by the society and its users. We need to take the photography, thus art, beyond being merely a usage; to solve abstract and tangible problems; to be able to observe and reflect the localness and while doing these, we need to do it without kitsch and with going beyond the analogy.

4. Turkish Photography Institutionalizing (is it?)

The story of the photography reaching the corporate level in university scale in Turkey is very interesting and tragicomic:

“In 1978, when the Fine Arts Academy of the period summoned us and launched this institution, its reason was not the need for higher education in photography branch. A Japanese photographer named Namikawa was going to prepare a book about Topkapı Palace and he needed to abide by some rules in order to take photographs comfortably. “Let’s open a photography school for you and get aid from the Japanese corporations,” he suggested to the Tokyo Embassy of the time. This wish just ignited the fire. Later, Namikawa appeared only two times and disappeared, minding his own business. After some period of time, the expected Japanese aid was proven to be a dream but it was decided to go along with the foundation having made so much preliminary works. So, Photography Institution was founded. When the first one was founded, it led the way for the similar ones in other universities” (Kalfagil, 2013).

Naturally, such a start unearthed some problems. Of course, out of these problems...;

“...the photography education takes its share. The start of the photography education was not due to the accumulated needs of the market. The market needs interlude workers. This need could be fulfilled with

secondary level education; a photography business high-school. The functional photography production had experience to some extent within the course representing the Turkish photography abroad and amateur and professional organizations reached a level of activity” (Kalfagil, 2013).

The emerging educational model was a co-ed, in other words, a syllabus oriented to satisfy the needs of both the art and the market had been prepared. Of course, this occasion can be evaluated under another heading, for the sake of the institutionalizing of the photography. The problem was that the conformity of the photography education model with the local conditions was not questioned and a lesson plan oriented to the needed area was not prepared. Apart from these, the fact that the photography activities and trends were inconsistent, shallow and that they ignored each other from time to time affected the ground and future of these corporate constitutions.

As Sabit Kalfagil (Kalfagil, 2013) states, an education model which both would satisfy the needs of the market and would provide artistic education has been emphasized within up to now. For instance:

“The point of origin of the Photography Department is oriented to seek the opportunities to conduct an education in communication with the photography sector in our country. Consequently, a great care has been shown towards the creation of this bond since the foundation phase. It has been aimed that creative photography artists, equipped with technical, aesthetical and notional information, would be schooled” (Marmara Üniversitesi, 2013).

Generally this objective that has been set is an interim or decisive and a medium objective in order to ecote workers capable of producing art. Consequently, it is not surprising that a non-existing photography ecote or attitude puts such an education plan forward. But how will this insight be reflected to the photography education? The student generally:

“...continues their education in the remaining two or three years by choosing one of the working areas. These divisions bring forward not only divisions of workshops, but also administrative and hierarchic divisions based on one instructor, being conducted with ‘master-apprentice’ relationship” (Tunç, 2007).

Or, necessarily, it appears before us with an average profile, taking all the basic and specialty areas oriented to photography practice one by one. In this process, which mostly happens in an analogy relationship, the student is eager to get a diploma, rather than putting his/her artistic ability forward. What needs to be is not a repetition; it is a photography insight developing by building upon.

In some institutions where different models are tested with a contemporary approach, the education model is reshaped with the new model between disciplines:

“The model aims to save the photography and video from a position where only their concepts speak and to reproduce them in experimental ways in terms of their borders within the world order of 21st century, which changes quickly by means of education, economy, social and political aspects” (Yıldız Teknik Üniversitesi, 2013).

Contemporary practices and trends can be followed more easily with such approach. Furthermore, within the scope of the applied education plan, apart from the basic courses, the student can choose the specialty courses from the desired area. The department, started the education in the end of 90s, has been freer by using different disciplines within the photography application area due to its different structure. Consequently, it becomes difficult to observe the effects of the insight of mainstream photography, which I defined not as a ecote but a strange kind of the experimental photography.

However, over the past five years, it’s possible to observe that mainstream photography insight has been generally being left and the reflection of the contemporary photography practice to the education has increased. Of course, it’s desired that photography education should follow contemporary dynamics in this way. However, again, the same question will come before us: “Which photography attitude and as whom?”

In the light of all these, the thing I wanted to exemplify or explain is related to a description or qualification. Ecote can be defined as the trends generally out of the mainstream; having a sorter quality by means of science, art and intellect and also a special method or attitude; mostly eligible to be initiative. Being a ecote is related to

either putting a new attitude forward or representing the available one in an appropriate way, conforming to its origins.

In this sense, what do we mean by saying “There are no ecoles in Turkish Photography”? Actually we can exemplify this situation with various photography ecoles:

F/64: The trend led by Edward Weston ve Ansel Adams denies all the interventions in the photography, America, 1932,

Farm Security Administration (FSA): The social documental photography trend started in America during the Great Depression in 1929,

Dusseldorf Photography Ecole: It is mentioned with the photography typologies made by Bernd and Hilla Becher towards the industrial buildings in 1970s, foundation of which was laid by the New Objectivity. Another feature of this ecole is that it raised world famous photographers with specific attitudes such as Andreas Gursky, Thomas Ruff, and Candida Höfer. The marks the photography philosophies of Bechers can be observed within the productions. However, none of them are similar to each other, nor a reproduction of Bechers.

So, who will we think of when someone mentions Turkish Photography? I’m asking this both as an approach and aesthetical values: Is what we will encounter a reflection of the cultural features or the reflection of an attitude emerging after a cultural, scientific or political movement of the country to art? Are they sparks of the individual activities? Are they the adaptations of the existing towards the local? Is it repeating Ara Güler, burning with the nostalgia disease? Is it the blindness caused by the failure to notice the contemporary? And how will the reflections of these questions to the education, which have not been solved yet, be solved?

5. Conclusion

It appears that the photography works in Turkey caused the same tentativeness to continue within the education insight due to social and political instability and parties’ failure to share, produce and define the ‘art of photography’.

The important thing is not using an experimental a documental method or discussing and fighting over a method or a technique brought into non-defined or immature attitude, ecole and movement about which one is better. The problem is not the competency to produce photography in a contemporary way. The problem is to have the conscious of what to produce and how to produce it; identifying it. Thus, the source of the problem is a matter of “defining” and “implementing” this definition.

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4th International Conference on New Horizons in Education

Reformulating Local Ceramic Stoneware as Replacement Material for Heat Sink Design

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Abstract

Heat sink was a device that enhances heat dissipation from a hot surface, usually the case of a heat generating component, to a cooler ambient, usually air. Currently, heat sinks were made of aluminium alloy, brass, cooper and steel. At a moment, the heat sink lamp quiet high producing the thermal expansion inside and poor air flow across the heat sink lamp. In this work, the investigation on typical design of current heat sink lamp and its ergonomic will be conducted. The objectives of this research is to fundamentally determined the applicable of stoneware body composition as the most suitable for heat sink lamp compared to the present products in the market thus enhance its quality production and commercial values. The stoneware body formulation then modified into five different batches. It investigated by comparing the 100% of stoneware with formulated stoneware versus alumina by a ratio of 90/10, 70/30, 50/50 and 30/70, respectively. By investigating the stoneware in designed test bar mould, it shows an increasing result of body density and strength. However, the water absorption decreased due to the increasing temperature from 1250°C to 1300°C. As conclusion, the acceptable stoneware body formula to be replacing the conventional heat sink material is batch 3 which is 70/30. The advantages of using this formula are because of this composition less shrinkage, less porosity and more strength.

Keywords: Stoneware, Heatsink, Design, Firing.

1. Introduction

All semiconductor devices have some electrical resistance. This means that when power is switch on, the power transistors will dissipate power and work as heat energy. The heat must be removed from the device which is usually using the base junction for a bipolar transistor as fast as enough rates to prevent excessive temperature rise. If not, the devices will be damaged harm by the heat. The most common way to solve this is by using a heat sink. Heat sink is a passive component that cools a device by dissipating into surrounding air. Heat sink are using cod electronic component such as high power semiconductor device. In the present study, M.A. Ismail, M.Z. Abdullah, M.A. Mujeebu (2008) four different types of heat sink have been used i.e. Pentiums III and IV, AMD Athlon and Duron heat sinks; in order to analyze their performance. To be an efficient affect, a heat sink must be design perfectly which is the surface area of heat sink as big as possible to allow the air flow from the fan to travel easily through the heat sink and provide the best possible amount of air flow cross the het sink. The part of heat sink that is in contact the devices must be very good thermal transfer. But even though it is flat, there will

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still be small air gaps in the contacts area and heat sink. Practical heat sinks for electronic devices must have a temperature higher than surroundings to transfer heat by convection, radiation and conduction. Ceramic materials present interesting properties such as a good hardness, high wear and corrosion and temperature resistance which makes them candidates for thermomechanical applications. However, these advantages are counteracted by the brittleness of the ceramics. Consequently, the presence of small defects such as pores can lead to a dramatic decrease in strength value. Therefore, according to M. Asmani, C. Kermel, A. Leriche, M. Ourak (2001) the use of ceramics as structural parts is conditioned by the development of non-destructive evaluation techniques such as ultrasonic methods which allow the porosity level.

2. Overview

In this work, the investigation on typical design of current heat sink lamp and its ergonomic will be conducted. At a moment, the heat sink lamp quiet high producing the thermal expansion inside and poor air flow across the heat sink lamp. An observation on the present heat sink lamp is to understanding what and why is the problem statement occurred. Once it is achievable, the heat sink lamp will be re-construct a new design by using advance stoneware composition as an important fundamental to replace inadequacy of the existing products. There will be some modification on the stoneware body formulation to further enhance its quality and commercial values. The objectives of this research is to fundamentally determined the applicable of stoneware body composition as the most suitable for heat sink lamp compared to the present products in the market thus enhance its quality production and commercial values. At the end of the research, it expected that with advance stoneware body as a main template for heat sink lamp will be produced and patented. The finding may also provide the better thermal resistance and durability of the heat sink lamp.

3. Methods

3.1. Experimental Procedures

This work presents a study on comparison of local ceramic body based on different firing profile. A physical test was used to determine the shrinkage, density, pores and strength between the different firing temperatures with five different ratio composition. Ceramic materials present interesting properties such as a good hardness, high wear and corrosion and temperature resistance which makes them candidates for thermo mechanical applications. This research will start with the body formula composition using difference type of advance Stoneware body. This body composition will make into different ratio each of them. According to Jorge Martín-Márquez, Jesús Ma. Rincón, Maximina Romero (2010) a porcelain stoneware composition was prepared by mixing 50% kaolinitic clay, 40% feldspar and 10% quartz. Stoneware is clay that when fired to maturity becomes a sturdy, chip resistant material suitable for using in cooking, baking, storing liquids, as serving dishes and to use in the garden. These pieces are meant to be used due to their durability. Slip casting technique were used in this study whereas new composition with different ratio of material casted using mould in solid rectangular shape with 15cm x 2cm x 1cm. All casted test bars dried into room temperature in two days time afterward transfer into dryer with temperature 110°C within 12 hours and it's become totally dry. After dried, every batch fired in two different temperatures which is 1250°C and 1300°C with the same firing profile. These methods have been used in reference citations as R.Anwar, H.R.Kamarun, V.V.Vermol and O.H.Hassan (2011)

Table 2: Stoneware / Alumina Composition

Batch	Stoneware (a)	Alumina (b)
100ST	100	0
90/10	90	10
70/30	70	30
50/50	50	50
30/70	30	70

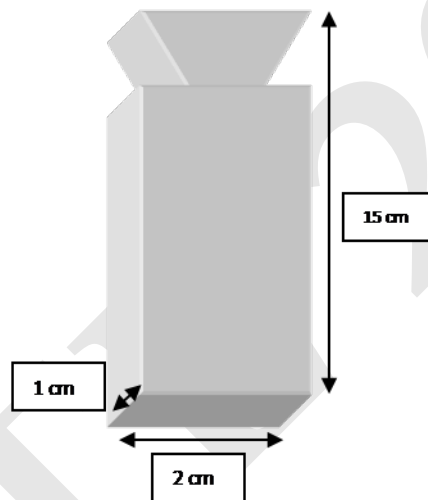


Figure 1 : Test Bar

Test bar

$$\text{Volume} = H \times L \times W$$

$$= 15\text{cm} \times 2\text{cm} \times 1\text{cm}$$

$$= 30\text{ cm}^3$$

$$\text{density} = (\text{weight}) / \text{volume}$$

$$2.0 = (\text{weight}) / (30\text{ cm}^3)$$

$$= 30 \text{ cm}^3 (2.0) \text{ g} / \text{cm}^3$$

$$= 60 \text{ g}$$

Based on test bar calculations that have been made, there is 2595.78g stoneware needed in total. Next, each material consists in stoneware need to be calculated.

Ball clay	$\frac{30\%}{100}$	x	2595.78g	= 778.74 g
Kaolin	$\frac{20\%}{100}$	x	2595.78g	= 519.16 g
Feldspar	$\frac{40\%}{100}$	x	2595.78g	= 1038.31 g
Quartz	$\frac{10\%}{100}$	x	2595.78g	= 259.58g

Alumina

$$= T1 + T2 + T3 + T4 + T5$$

$$= 0\text{g} + 8.07 + 25.92 + 46.8 + 71.19$$

$$= 151.98\text{g} \times 9 \text{ pieces}$$

$$= 1367.82 \text{ g}$$

3.2. Experimental Devices

The fired test bar then been measure by using the physical reflection method which is caliper (pulse echo method) that needs the use of to measure size shrinkage while scale to measure weight shrinkage. METTLE TOLEDO AG204 scales were used for water density test which accurate with four decimal result. Water absorptions and the apparent densities of the test bar measurement required the test bar being immersed into the water, as cited R.Anwar, H.R .Kamarun, V.V.Vermol and O.H. Hassan (2011) a tank with 100°C water being used.

4. Result and discussion

4.1. Size Shrinkage

As per shown in figure 2a, the complete casted test bar using slip casting process into solid rectangular without any defect. Each test bar has been measure the length from the time when it greenware, dried and after firing. Figure 2b shows that this experiment is measured by caliper to get the accurate measurement in length, depth and thick on each test bar. Table 2 shows the changes of test bar due to the length undertake some process

within two different firing temperatures which is 1250°C and 1300°C. At this stage, it is observed that high temperature can increase the shrinkage percentage due to the material. However, it shows that alumina sample consists with high alumina contain decrease the percentage of shrinkage. It is for the reason that, this research needs to control the size during production to produce the accurate size for heat sink.

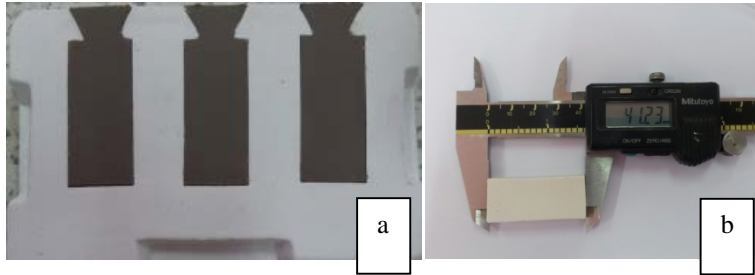


Figure 2a : Casted test bar

Figure 2b : Measuring length

Table 3 : Size shrinkage for 5 different batches.

	1250°C				1300°C			
		Length (mm)			Length (mm)			
ST / Al ₂ O ₃	Wet	Dry	Fired	Reduce	Wet	Dry	Fired	Reduce
100ST	50.00	47.55	41.96	8.04	-	-	-	-
90/10	50.00	47.95	41.81	8.19	50.00	48.15	42.59	7.41
70/30	50.00	47.56	41.00	9.00	50.00	48.09	41.44	8.56
50/50	50.00	47.39	42.58	7.42	50.00	48.05	41.50	8.50
30/70	50.00	48.18	45.77	4.23	50.00	47.56	43.44	6.56

4.2. Weight Shrinkage

Table 3 shows the change of weight for each batch before and after firing. The more alumina content inside composition, it will reduce weight slightly.

Table 4 : Comparison for weight shrinkage

1250°C					1300°C			
Weight (g)					Weight (g)			
ST / Al ₂ O ₃	Wet	Dry	Fired	Reduce	Wet	Dry	Fired	Reduce
100ST	22.73	17.86	16.63	6.10	-	-	-	-
90/10	23.45	18.63	17.46	5.99	24.04	19.13	17.87	6.17
70/30	24.27	19.07	18.12	6.15	24.26	19.36	18.32	5.94
50/50	25.39	19.71	19.02	6.37	26.06	20.46	19.64	6.42
30/70	27.75	21.96	21.47	6.28	27.12	21.63	21.07	6.05

4.3. Water absorption

The water absorption (WA) of each specimen after involve the test specimens to constant mass (D), soak 4 hours in boil water 110°C and another 2 hours in tap water. After impregnation, the mass (M) at saturation was determined. Table 4 shows that comparison of water absorption between two different temperatures which batch 30/70 is the highest ratio for water absorption. These mean that this ratio is more porous than others. It also can be seen that the more alumina composition, the more porous it is. Compare with stoneware composition, it'll become dense after firing in high temperature. V.Melnick, S.A. Pianaro, S.Cava, S.M. Tebcherani (2010)

$$WA = \frac{M - D}{D} \times 100\%$$

Table 5 : Comparison of water absorption

1250°C				1300°C			
Weight (G)				Length (Mm)			
ST / Al ₂ O ₃	Fired	Soak	%	Fired	Soak	%	
100ST	8.17	8.2	0.003841	-	-	-	
90/10	8.26	8.29	1	7.50	7.54	1	
70/30	7.77	8.51	0.086522	6.60	6.615	0.002268	
50/50	10.13	10.84	0.065498	7.91	8.01	0.013109	
30/70	10.09	11.45	0.118777	8.40	9.09	0.076458	

4.4. Water density

To determine water density, fired specimens (W_{dry}) was examined by weighed the specimen. Fired specimens were immersed into water and record the saturated weight (W_s) and follow by the weight after immersed (W_{ss}).

$$\rho_{app} = \frac{W_{dry}}{W_{ss} - W_s} \times 1.00 \text{g/cm}^3$$

ρ_{bulk} was measure by weight after firing (M) and divided by volume after fired.

$$\rho_{bulk} = \frac{M}{V}$$

Once ρ_{app} and ρ_{bulk} is calculated, ratio of water density can be determined by calculate by following formula.

$$\rho_{ratio} = \frac{\rho_{bulk}}{\rho_{app}} \times 100$$

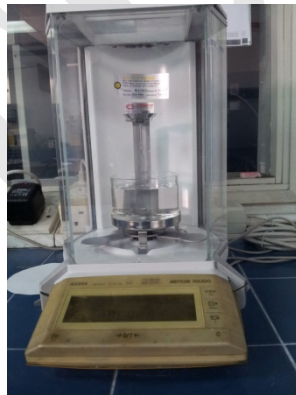


Figure 3 : Water Density test equipment

Table 6 : Comparison of water density

ST / Al ₂ O ₃ :Dry	1250°C					1300°C						
	Weight (g)		ρ_{app} (g/cm ³)	ρ_{bulk} (g/cm ³)	ρ_{ratio} %	Dry	Weight (g)		ρ_{app} (g/cm ³)	ρ_{bulk} (g/cm ³)	ρ_{ratio} %	
	(WS) Wf saturated	(WSS) Wf Immersed					(WS) Wf saturated	(WSS) Wf Immersed				
100ST	8.17	4.79	8.29	2.34	2.78	119.17	-	-	-	-	-	
90/10	8.26	4.99	8.35	2.46	2.84	115.34	9.13	5.41	9.24	2.39	1.96	82.01
70/30	7.77	4.98	7.87	2.69	3.12	116.05	11.67	7.50	11.72	2.76	1.57	56.78
50/50	10.14	6.62	10.82	2.41	2.50	103.80	9.70	6.33	9.80	2.79	2.02	72.45
30/70	10.09	6.87	11.39	2.24	2.75	122.99	12.47	8.52	13.45	2.53	1.69	66.90

4.5. MOR (Modulus of Rupture)

Table 6 gives the result of data evaluation for MOR test on different ratio composition and different types of body. Figure 2 prove that batch 70/30 is the strongest when fired in 1300°C compare with others, yet, in 1250°C temperature, it is also in average, not too high and not too fragile. For easy handling purpose while production, 100% stoneware are the best. As been shown, the more alumina contains in composition, it might be use after firing due to the hardness, and however it was very fragile at greenware stages so it is not suitable for production. So, in average from greenware to high temperature, batch 70/30 are suitable for production due to its character while greenware or after firing.

Table 7 : MOR result

MAX FORCE

ST Al2O3	Greenware	1250	1300
100ST	70.6514	2207.26	-
90/10	72.6700	2554.73	2468.12
70/30	49.8732	2624.19	4308.49
50/50	40.7577	2777.71	3231.89
30/70	44.4651	2760.83	3580.11

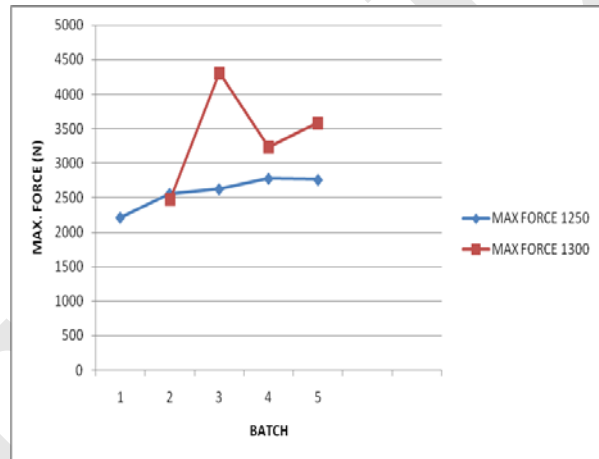


Figure 4 Comparison MOR for 1250°C and 1300°C



Figure 5 MOR test

5. Conclusion

Alumina mixture with stoneware body can create a new composition that suitable use for strengthen. However, on the other hand, if more alumina content in composition, it will become more porous. Batch 70/30 are the suitable mixture for heat sink design as the strength, shrinkage and it is easy for handling in production. As the result, alumina and stoneware depending on each others and only with the right combination can make it become suitable to use. However, batch 50/50 and 30/70 are good enough for strength and density nevertheless it was very difficult while casting process which is easily set, so it always need to stir before casting process, beside, it was very fragile while greenware stage and after casting processed, we have acquired result for the mixture which is there are many air trap as shown in figure 7.

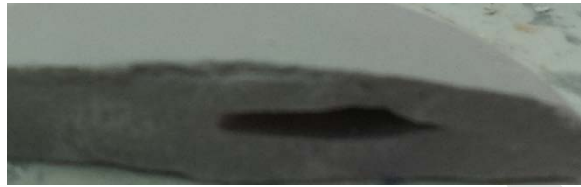


Figure 6 Air trap in Test bar

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Relationship between mathematical ability and achievement in mathematics among female secondary school students in Bayelsa State Nigeria

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Abstract

This study investigated the relationship between female senior secondary school students' mathematical ability and achievement level in mathematics in five (5) out of eight (8) local government areas in Bayelsa State Nigeria. This study adopted multi-stage sampling technique. Data were collected from a sample of 121 female students from rural and 141 female senior secondary school students from urban schools which were randomly selected using the simple random sampling method both at the Local Government, and at the school level. Two research questions and instruments were raised for the study. The instruments were Student Mathematical Ability Test (SMAT) with $r = 0.68$ and Mathematical Achievement Test (MAT) with $r = 0.68$ was established for the student Mathematics Achievement Test. Simple linear correlation was used to analysed the data collected at 0.05 alpha. Results showed that there was a positive significant relationship between mathematical ability and achievement in mathematics. Using multiple regression analysis showed that mathematical ability has a significant effect on achievement in mathematics with $B = 0.386$ and $P < 0.05$. Based on these findings, it was recommended that government should provide schools with facilities that will develop and sustain students' mathematical ability as it is a good predictor of students' achievement in mathematics.

Keywords: Mathematical Ability; Mathematics Achievement; Female Students; Secondary School Students; Bayelsa State.

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Introduction

The vital role which mathematics plays in education is derived from the cultural, utilitarian and interdisciplinary values which the subject seeks to inculcate in the learner. Mathematics education is to a nation what protein is to a young human organism. It is a vital tool for the understanding and application of science and technology. The discipline plays the vital role of a precursor to the much needed technological and national development of Nigeria. Hassan (2002) opined that mathematics as a subject is now universally recognized and accepted as indispensable to self-reliance and sustainable development of any nation because of the perceived functional utility. Umuoyang (1998) warned that any nation seeking to develop a strong level of science and technology must pay attention to the teaching and learning of mathematics. He puts it as “*any nation that seriously desires technology must not relegate the teaching and learning as well as research into mathematics to the background*”.

In support of the above assertion, Eguawon (2002) is of the opinion that mathematics is a model for thinking, developing scientific situations, drawing conclusions as well as for solving problems. Mathematics trains the mind on attention and concentration which are bound to be useful for the student throughout life. He went further to stress that mathematics also promotes the habit of accuracy, logical, systematic and orderly arrangements. Because of the importance attached to the technological development, the Nigerian government has not only made mathematics a compulsory subject in the curriculum of the primary and secondary school levels of her educational system (Federal Republic of Nigeria, 2004) but also as a prerequisite to the study of science courses in her colleges, polytechnics and universities (JAMB Brochure 1992 – 2007).

Despite the relevance and usefulness of mathematics as a key in realizing any national development and aspiration, over the years, there has been a repeat of low level of achievement or poor performance and failure of students in mathematics at both junior and senior secondary school levels in both rural and urban schools.

Poor achievement in mathematics in Nigerian secondary schools has assumed an alarming proportion and caused a lot of concern for many years. The concern for this poor performance is not only limited to mathematics educators but also parents and other stakeholders. However, the reason for the poor performance of mathematics from year to year has been ascribed to inadequacies in one or all of these areas namely, the nature of the subject, the learners factor and the teachers factors. Korau (2006) opines several variables ranging from the learners themselves, teachers, textbooks, curricular and school environment to have been responsible for students' poor achievement in mathematics. The above argument informed Hornby (1985) to define achievement as the act of achieving or something done successfully especially with efforts or skills. According to research, achievement is the end product of learning experience, what students have gained as a result of what they have learnt.

Mathematics achievement deals primarily with the performance of students in their either teacher-made test or standardized achievement test administered by examining bodies. Looking at the academic achievement of students in mathematics across the country, the poor achievement becomes more striking. One wonders what then could be responsible for this poor performance despite its importance and recognition given by the society and various efforts made by the Federal Government and the Mathematical Association of Nigeria (MAN).

Various factors have been adduced for the poor performance of students in mathematics. Such factors as the interest of students in mathematics which according to Aremu (1998) have been related to the volume of work completed; anxiety (Odunuga, 2005); motivation (Broussard and Garrison, 2004, Tella, 2007); reasoning and numerical ability (Adeleke, 2007); problem solving skill (Onabanjo, 2007); mathematics phobia (Bature, 2006) and instructional strategy (Onabanjo, 2007).

The wide spread low performance of students in secondary school mathematics can also be ascribed largely to how instructions on mathematics is presented to the students. According to Ale (2001) the paucity or scantiness of relevant mathematics textbooks stands a basic factor which affects the teaching and learning of mathematics in Nigerian secondary schools. In the Nigerian context, poor achievement in mathematics in secondary schools has assumed alarming proportions and caused a lot of concern for many years. This poor performance is as a result of many factors which includes among others, self-concept, attitude, and mathematical ability.

Gender factor is very strong in learning and thus determines the interest and achievement and consequent career choice. It is interesting to note that while Jahun, and Momoh (2001) established that gender is significant in school mathematics achievement, other studies such as that of Aiyedum (2000) found no significant difference between males and females in school mathematics achievement.

Whereas Meyer and Koehler, (1990) cited in Badmus (2009); is of the argument that males are better at mathematics than females because of genetic reasons, some because of societal influence and some said it is due to mathematical anxiety level. Also in agreement are Onabanjo (2000); Ojo (2004) who independently found out that boys perform significantly better than girls in senior secondary school mathematics. This difference is often overstated and its cause is often highly debated. For Benbow (1990) lower performance trends of females in mathematics have been observed to influence the lower participation of females in science and mathematics related profession. Still on gender difference in achievement in mathematics some other researchers puts male and female discrepancy in mathematics achievement in favours of males performing better than their female counterparts to be as a result of the female belief towards mathematics.

Despite the importance of the girl-child education, there are still a number of cultural, social and economic barriers to girl-child education in Nigeria, that the cultural inhabitation is closely tied to religious affiliation and cultural practices. Nigerians are yet to accord the girl-child education the same level of importance as that of the boy-child.

1.1 Statement of problem

Observations and reports from examining bodies revealed that a high percentage of secondary school students failed mathematics examinations and the failure often generated much concern especially, to parents, teachers, students and other stakeholders in education business. In a situation where the student will be blamed for poor performance, emphasis is only placed on the students' cognitive or intellectual ability. Little or no attention is given to the fact that the student's mathematical ability can affect their achievement in mathematics. Based on the above assertion, this study intends to find out the relationship between mathematical ability and achievement in mathematics of female secondary school students.

1.2 Research questions

Based on the above problem, this study intends to provide answers to the following questions:

- * What is the relationship between the mathematical ability and achievement in mathematics of female senior secondary school students?
- * What is the relative effect of mathematical ability on achievement in mathematics of female senior secondary school students?

1.3 Significance of the study

This study is important to all stake-holders in education as it provides a better understanding on the relationship between students' variables in several ways. The results of the study will provide an empirical basis for development and improvement of students achievements in mathematics among which are:

- * The information obtained will unveil the effect of mathematical ability on the achievement in Mathematics of female secondary school students.
- * The results of this study will help provide a basis for curriculum planners to review and make necessary modifications or improvement in instructional methods and materials at the senior secondary school level.

2. Literature review

2.1 Gender and achievement

For full realization of this laudable objective of Mathematics education, subject mastery and demonstrated achievement should be evenly distributed across gender. Poverty, economic constraints, early marriage and teenage pregnancy, inadequate school infrastructure and cultural and religious misinterpretation are some of the main barriers preventing girls in Nigeria from going to school (UNICEF, 2007)

Alao, and Adeleke (2000) investigations showed that girls exhibit more fear for mathematics than boys in mathematics activities. Manger and Eikeland (2006) who worked on the effect of mathematics self-concept on girls' and boys' mathematical achievement, establish several results concerning gender and achievement. First, they found out that there was no significant effect of gender on overall mathematical achievement. Second, although the gender difference in achievement favoring boys increased with increasing task difficulty, no significant effects of gender were found in sub-samples of difficult tasks.

2.2 Mathematical ability and achievement

Mathematical ability is the capacity to use or manipulate numbers effectively in clerical administrative, scientific and other areas of application of numbers. It is the ability to understand and work with numbers with ideas related to numbers. Tremblay, Garner, and Heipel (2000) studying the impact of the sample variables, supported the hypothesis that mathematical ability contribute to the prediction of achievement in statistics as suggested by Harlow, Burkholder, and Morrow (2002). Similarly, Oyekanmi (2008) in his work on mathematical ability and gender as correlates of students' achievement found out that there is no significant interaction effect of gender and mathematical ability on students' achievement in physical geography. This implies that gender and numerical ability do not jointly differentiate students' achievement in practical and physical geography achievement test.

3. Research Methods

3.1 Research type

This study is a non-experimental survey. This is so because the variables studied are already there in the students and the researcher will not in any way attempt to manipulate the variables.

3.2 Variables in this study

The independent variable is Mathematical ability.

The dependent variable is Achievement in Mathematics

3.3 Target population

The focus and population of this study is made up of female students of Senior Secondary School year two in Bayelsa State both from rural and urban schools.

3.4 Sample

Thirty (30) out of the ninety eight (98) senior secondary schools in Bayelsa State were randomly selected. Ten (10) female students were randomly drawn from each of the thirty (30) selected schools to give a target population of three hundred (300) female students.

3.5 Sampling technique

This study adopted multi-stage sampling technique. Random sampling techniques were employed at the Local Government Area and at the school level.

3.6 Sampling at Local Government Level

As at the time of this study, Bayelsa state is made up of eight Local Government Areas. They are Brass, Ekeremo, Kolokuma/Opukuma, Nembe, Ogbia, Sagbama, Southern-Ijaw and Yenagoa Local Government Areas. Five out of the eight (8) Local Government Areas of Bayelsa State were randomly selected for this study given about 63% coverage of the entire Bayelsa State Senior Secondary Schools.

3.7 Sampling techniques at school level

A total of 30 senior secondary schools were randomly selected. This figure constitutes about 30% of the secondary schools in the sampled Local Government Areas. The sampled schools were made up of 60% urban schools and 40% rural schools.

4. Data collection

4.1 Instrumentation

This study was designed to examine the relationship between students' mathematical ability and achievement in mathematics. The two instruments for this study were partly developed and partly adopted by the researcher. These are:

- * Mathematical Achievement Test (**MAT**).
- * Student Mathematical Ability Test (**SMAT**)

4.2 Mathematics Achievement Test (MAT)

To measure the students' mathematics achievement, an Mathematics Achievement Test (MAT) developed by the researcher using a table of specification generated 30 items from a pool of already standardized test items was used. This is a multiple-choice objective test made up of four options A, B, C and D. The instrument was validated by experts for face and content validity after consulting a conventional Public Senior Secondary School Mathematics teacher. Each item has one correct option (the key) and three distracters. The correct option will attract 1 mark.

4.3 Students' Mathematical Ability Test (SMAT)

Mathematical Ability Test consists of twenty (20) items was used in this study to assess students' mathematical ability. The students were allowed twenty minutes to respond to the items. A student's correct response to an item was scored 1, while a students' wrong response was scored 0. There was no penalty for guessing. The reliability coefficient of 0.72 for the instrument was established by the researcher using the Kuder-Richardson reliability coefficient formula (RK20). The test is curriculum referenced. The SMAT was adopted from Barret & Williams (1997).

4.4 Validity of the instruments

For the purpose of this study, both the face and content validity of the instruments were ensured. The content validity of the instrument was enhanced by suggestions from research experts in questionnaire construction at the Institute of Education, University of Ibadan. Based on the suggestions and comments of these experts and colleagues, the necessary corrections were made. The data collected showed that the students did not have problems responding to the items in the questionnaire.

4.5 Reliability of the instruments

The reliability of the students' responses to the instruments was established. The split half reliability coefficient of the thirty test items was determined by using Kuder Richardson Formula K21 which gave a reliability estimate of 0.68. This establishes the internal constituency of the student Mathematics Achievement Test.

4.6 Data collection procedure

Well structured, closed and scaled questions determined from pilot study were administered on respondents through SMAT and MAT. The administration and collection of all the necessary information was done during normal class periods personally by the researcher and with the help of research assistants. The necessary data for this study were obtained from students of the selected schools in the selected local government areas. The researcher and the assistants directly used the instrument to collect the required data. In each of the selected schools visited, permission to administer the instrument to their students was obtained from the principal of the concerned school. 300 copies of the instrument were distributed to the selected students in the 30 schools and were retrieved, among which 38 (11.4%) badly filled ones were discarded. A total of 262 (88.6%) instruments fully responded to were utilized and data collection lasted for 28 working days.

5. Data analysis and results presentation.

5.1 Data Analysis

The scores for the items were encoded in SPSS software in order to analyze the data. The statistical procedures used to describe the variables include frequency counts and percentages. Variables linkages were performed on the data. All the research questions were tested at 0.05 significance level. The qualitative data collected were analyzed using descriptive statistics to explore respondent's views. T-tests, ANOVA, Correlation and Multiple Regression were used to determine associations between the independent variables and the dependent variable in answering the research questions.

5.2 Challenges

One of the limitation of the study was the missing values which affected the validity of the entire 300 questionnaire responded to by the students. One other challenge that was faced by the researcher during the study was associated with the insincerity of some students which was observed as some respondent either tick only one particular option or in an alphabetical order. They were however discarded. Selection and participation of students was a challenge in most schools. This problem was solved with the assistance of the Principal or a teacher in the school who helped the researcher addressed the students and sought the consent of those who wanted to participate in the exercises which were later selected at random. Finance was another big challenge. The study involved huge amount of money from cost of developing and producing the instruments to transportation logistic due to the terrain of Bayelsa State.

5.3 Results

The results are presented in line with the sequence of the research questions. An alpha level of .05 was used in statistical test.

Research Question One: What is the relationship between Mathematics Ability and Achievement in Mathematics of Female Senior Secondary School Students?

Table 1. Correlation for Mathematics Ability and Achievement in Mathematics of Female Senior Secondary School Students.

	Achievement	Mathematical Ability
Achievement	1.000	
Mathematical Ability	.393***	1.000

Note: ** P < .01; * P < .05

Table 1 presents the correlation among variables. The table shows that the correlation between female senior secondary school students' mathematical ability and achievement in mathematics is 0.393. And it is statistically significant at $P > 0.01$. This result implies that there is a positive relationship between mathematical ability mathematics and achievement in mathematics.

Research Question Two: What is relative effect of Mathematical Ability on Achievement in Mathematics of Female Senior Secondary School Students?

Table 2 Regression Coefficients Relative effect of Mathematical Ability on Achievement in Mathematics of Female Senior Secondary School Students.

Model	Unstructured Coefficients		Standard Coefficient	T	Sig
	B	Std. Error	Beta		
1	.425	.063	.386	6.740	.000

Results from table 2 shows that the predictor (mathematical ability) of female senior secondary school students on achievement in mathematics in Bayelsa State had a statistical significant effect on achievement with $\beta = 0.386$, $t(260) = 6.74$; $P > 0.05$. This is to say that mathematical ability is makes a significant contribution to achievement in mathematics.

5.4 Discussion

It is beneficial to note that the causes of students poor performance have not only been identified but that educators have been actively engaged in seeking clear understanding of the issues involved and in some cases proffer viable remedies. Yet the problem of poor performance in school works or in public examinations according to Salau (1995) seems to loom larger. He opined to the fact that the causes of student's under-achievement are perhaps less obscure than remedies. While in mathematics of which the results of this study tend to reveal, it may be true that high achievement in mathematics is a function of some inter-related factors, among which mathematical ability is; the impact of school factors and in particular overcrowding and dilapidating/unfurnished classrooms, can hardly be over-emphasized.

Research Question one: What is the relationship between Mathematics Ability and Achievement in Mathematics of Female Senior Secondary School Students?

The studies carried out by Naiz (1993); Simsek (1993) seemed to lend credence to the efficacy of mathematical ability groupings on learning outcomes. Despite the students demonstrating confidence in their abilities, the overall performance on the mathematics achievement test was quite poor, particularly considering the basic nature of the questions. The average score was about 50% and almost half the students achieved this or lower. This finding is in corroboration with WAEC, (2003) whose findings have also shown that poor performance of students in mathematics could be traced to their mathematical ability. The findings of this study also substantiate the results of the studies of Tremblay, Garner, and Heipel (2000) who studying the impact of the sample variables, supported the hypothesis that mathematical ability contributes to the prediction of achievement in statistics as suggested by Harlow, Burkholder, & Morrow, (2002). However, the students were seen to demonstrate a procedural knowledge of the ability to reason through the given mathematical situations, the ability to connect, employ and communicate an algorithmic process within the given problems with little ease. That is to say, the higher the mathematical ability of a student is, the higher his/her achievement in mathematics and the lower the mathematical ability of a student is, the lower his/her achievement in mathematics.

Research Question two: What is relative effect of Mathematical Ability on Achievement in Mathematics of Female Senior Secondary School Students?

The findings of this study from as shown in table 2 presents, the standardized and unstandardized regression coefficient and the corresponding T-values for each of the independent variables mathematical ability. The beta weight gives an indication of the relative contribution of the variable to the prediction of students' achievement in mathematics when all other variables are controlled. The beta weight associated with mathematical ability is significant at .05 level. From the values of the standardized regression weights associated with the independent variable in table 2 above, it indicates clearly that students' mathematical ability is a potential contributor to students' achievement in mathematics. This is in agreement with the findings of the results of the studies of Tremblay, Garner, and Heipel (2000) who studying the impact of the sample variables, supported the hypothesis that mathematical ability contributes to the prediction of achievement in statistics as suggested by Harlow, Burkholder, & Morrow, (2002).

5.5 Summary of Findings

In secondary schools, the role and place of their mathematical ability affecting student's achievement in mathematics cannot be over-emphasised. It is in light of this that the present study has been carried out to investigate likely relationship between students' mathematical ability and achievement in mathematics.

Two hundred and sixty two (262) female senior secondary school students out of which one hundred and twenty one (121) students from fifteen (15) schools in the rural areas and one hundred and forty one (141) students from fifteen (15) schools in urban areas selected from five (5) out of the eight (8) local government areas in Bayelsa State were used for this study. The independent variable was mathematical ability, while the dependent variable was achievement in mathematics. The data collected were analysed using statistical tools known as linear correlation and multiple regression in the computer statistical package for social science (SPSS).

The finding of this study based on the sample and data collected revealed:

- * That there is a positive and significant relationship between students' mathematical ability and achievement in mathematics.
- * That student's mathematical ability can predict achievement in mathematics.

5.6 Conclusion

This study highlights an important result that provides further information concerning the links between students' mathematical ability and achievement in mathematics. However, the results of this study also showed that mathematical ability is a strong predictor on students' achievement in mathematics.

5.7 Recommendation

The following recommendations are made.

- Students' confidence in their mathematical insights and abilities should be developed and maintained.
- Students should be made to have a feel of the enjoyment, curiosity, and perseverance when encountering new problems.
- Government should equip and provide social amenities in the rural schools so as to attract and sustain qualified staff.
- Teachers should make mathematics teaching interesting.
- Individual differences in students' ability, background and attitude should be taken into consideration by teachers and parents.
- Instructional materials should be designed and developed to aid mathematics teaching and learning.

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Relationship between self-compassion and job satisfaction in white collar workers

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Abstract

The purpose of this study is to examine the relationship between self-compassion and job satisfaction and to observe whether job satisfaction scores vary in view of certain demographic variables. 300 white-collar workers from four different companies in Istanbul, operating in telecommunication, chemicals, security technologies and insurance sectors, participated in this study in 2011-2012. The study was conducted on a voluntary basis. In this study, Self-compassion Scale, Job Satisfaction Scale and Personal Information Sheet were used. SPSS 16.0 was used for data analysis. Results demonstrated moderate positive correlation between self-compassion and job satisfaction. The results also showed that job satisfaction scores vary by age, level of education and position but do not vary by gender, department, tenure, company's sector and capital structure.

Keywords: White-collar Workers, Self-compassion, Job Satisfaction

1. Introduction

Job satisfaction has a positive impact on productivity, presence and competitive performance, resulting in a decline in employee turnover rates and withdrawal behaviors. Job satisfaction has a positive impact on the employee's well-being and overall life satisfaction as well. As a result of recent interest in Eastern philosophy, some new concepts are shown to have a positive impact on an individual's overall well-being and life satisfaction. Self-compassion, defined by Kristin Neff, is one of these concepts (Neff, 2003b).

Self-compassion involves being discerning and gentle towards oneself in the face of hardship or perceived inadequacy and entails acknowledging that suffering, failure and inadequacies are part of the human condition. Neff proposed that self-compassion involves three main components: Self-kindness versus self-judgment, common humanity versus isolation and mindfulness versus over-identification (Akin and others, 2007).

Self-compassion has been found to be positively associated with psychological well-being, life satisfaction, happiness, optimism and positive affect. Positive relationship between these concepts and job satisfaction has already been shown. Other studies have shown that mindfulness is positively associated with job satisfaction (Hollis-Walker & Colosimo, 2010; Neely, Schallert, Mohammed, Roberts & Chen, 2009; Neff, 2004; Neff, 2011; Neff, Kirkpatrick & Rude, 2007; Neff & Vonk, 2009).

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2. Purpose

The purpose of this research was to explore the relationship between self-compassion and job satisfaction. In this study we hypothesized that there will be a positive relationship between self-compassion and job satisfaction.

3. Method

3.1. Participants

This research involves 300 white collar workers (35% females, 65% males) working in telecommunication (25%), chemicals (25%), security technologies (25%) and insurance sectors (25%).in Istanbul. Instruments used for data collection in this study were Self-Compassion Scale (Neff, 2003), Job Satisfaction Scale (Brayfield & Rothe, 1951) and Demographics Questionnaire. Of the participants, 34 (11,3%) were graduated from high school, 234 (78%) were graduated from college, and 32 (10,7%) were graduated from post-graduate / doctorate. Their average age was 33.59 years (SD = 1.09) ranging from 21 to 50 years.

Table 1. Demographic Information

Capital Structure	Frequency	%
Foreign partnership	150	50
Foreign capital	150	50
Department		
Finance / Accounting / Legal / IT	65	21,7
Human Resources / Admin / Personnel Affairs	35	11,7
Sales / Marketing / Business Development	163	54,3
Production / Quality Control / Purchasing / Logistics / Planning / Product Development	37	12,3
Total Tenure		
1-10 years	176	58,7
11-20 years	86	28,7
21-30 years	38	12,7
Position		
Technician / Clerk	31	10,3
Assistant Specialist / Specialist / Senior Specialist	210	70
Supervisor / Assistant Manager / Manager / Director / Executive	59	19,7

3.2 Procedure

This research was conducted in 2011-2012. Participants received an email with a link to the online survey including the Self-Compassion Scale, Job Satisfaction Scale and Demographics Questionnaire. The survey page

included explanations about the purpose of the study. Responses to the survey were recorded anonymously and confidentiality was guaranteed for the participants. Participants had to respond to each question in order to complete the survey.

4. Findings

Table 2. Descriptive Statistics and Inter-correlations of the Variables

Variables	1	2
1.Self-compassion	1	.446
2.Job satisfaction	.446	1

Results showed a moderate positive relationship between self-compassion and job satisfaction in white collar workers. ($r=0,446$; $p<0,01$).

Table 3. White Collar Workers' Job Satisfaction Levels in Terms of Total Tenure

Source	Ss	df	MS	F	p
Between Groups	5,21	2	2,61	2,16	0,12
Within Groups	358,35	297	1,21		
Total	363,57	299			

According to the ANOVA results, there is no significant difference between white collar workers' job satisfaction levels in terms of total tenure ($F=2,16$; $p=0,12>0,05$).

Table 4. White Collar Workers' Job Satisfaction Levels in Terms of Position in the Company

Source	Ss	df	MS	F	p
Between Groups	12,729	2	6,365	5,388	0,005
Within Groups	350,837	297	1,181		
Total	363,57	299			

According to the ANOVA results, there are significant differences between white collar workers' job satisfaction levels in terms of position in the company ($F=5,388$; $p=0,005<0,05$). We used Post Hoc Tests to find which positions cause differences in job satisfaction levels.

Table 5. Post Hoc Test Results

Position I	Position J	Mean Difference (I-J)	Std. Error	p
Technician, Clerk	Assistant Specialist, Specialist, Senior Specialist	-0,002	0,2	1
	Supervisor, Manager, Director, Executive	-0,52	0,24	0,08
Assistant Specialist, Specialist, Senior Specialist	Technician, Clerk	0,002	0,21	1
	Supervisor, Manager, Director, Executive	-0,52*	0,16	0,004
Supervisor, Manager, Director, Executive	Technician, Clerk	0,52	0,24	0,08
	Assistant Specialist, Specialist, Senior Specialist	0,52*	0,16	0,004

* The mean difference is significant at the ,05 level.

According to the Tukey HSD test results; job satisfaction levels of Supervisor, Manager, Director and Executives significantly higher than job satisfaction levels of Assistant Specialist, Specialist, Senior Specialists (Mean Difference=0,52; p=0,004).

Table 6. White Collar Workers' Job Satisfaction Levels in Terms of Department

Source	Ss	df	MS	F	p
Between Groups	6,1	3	2,03	1,68	0,17
Within Groups	357,47	296	1,21		
Total	363,57	299			

According to the ANOVA results, there is no significant difference between white collar workers' job satisfaction levels in terms of department ((F=1,68; p=0,17>0,05).

Table 7. White Collar Workers' Job Satisfaction Levels in Terms of Education Level

Source	Ss	df	MS	F	p
Between Groups	8,17	2	4,084	3,413	0,034
Within Groups	355,4	297	1,197		
Total	363,57	299			

According to the ANOVA results, there are significant differences between white collar workers' job satisfaction levels in terms of education level ($F=3,413$; $p=0,034<0,05$). We used Post Hoc Tests to find which education level cause differences in job satisfaction levels.

Table 8. Post Hoc Test Results

(I) Education	(J) Education	Mean Difference (I-J)	Std. Error	p
High School	College	0,26	0,2	0,4
	Post-graduate / Doctorate	-0,24	0,27	0,65
College	High School	-0,26	0,2	0,4
	Post-graduate / Doctorate	-0,50*	0,21	0,04
Post-graduate / Doctorate	High School	0,24	0,27	0,65
	College	0,50*	0,21	0,04

* The mean difference is significant at the ,05 level.

According to the Tukey HSD test results; job satisfaction levels of workers at Post-graduate / Doctorate significantly higher than job satisfaction levels of workers at College education level (Mean Difference=0,50; $p=0,04$).

Table 9. White Collar Workers' Job Satisfaction Levels in Terms Gender

Source	Gender	N	Mean	Std. Dev.	df
Job Satisfaction	Male	196	3,31	1,13	298
	Female	104	3,35	1,06	

According to the T-Test results, there is no significant difference between white collar workers' job satisfaction levels in terms of gender ($t=-0,33$; $p=0,738/2=0,37>0,05$).

Table 10. White Collar Workers' Job Satisfaction Levels in Terms of Age

Source	Ss	df	MS	F	p
Between Groups	14,29	5	2,858	2,406	0,037
Within Groups	349,27	294	1,188		
Total	363,57	299			

According to the ANOVA results, there are significant differences between white collar workers' job satisfaction levels in terms of age ($F=2,406$; $p=0,037<0,05$). We used Post Hoc Tests to find which age groups cause differences in job satisfaction levels.

Table 11. White Collar Workers' Job Satisfaction Levels in Terms of Age

(I) Age	(J) Age	Mean Difference (I-J)	Std. Error	p
21-25	26-30	0,78	0,2	0,99
	31-35	0,39	0,21	0,47
	36-40	0,25	0,23	0,89
	41-45	0,12	0,25	0,99
	46-50	-0,4	0,26	0,64
26-30	31-35	-0,08	0,2	0,99
	36-40	0,31	0,18	0,53
	41-45	0,17	0,2	0,96
	46-50	0,04	0,23	1
	46-50	-0,47	0,23	0,31
31-35	36-40	-0,39	0,21	0,47
	41-45	-0,31	0,18	0,53
	46-50	-0,14	0,21	0,98
	41-45	-0,27	0,24	0,87
	46-50	-0,78*	0,24	0,02
36-40	41-45	-0,25	0,23	0,89
	46-50	-0,17	0,2	0,96
	46-50	0,14	0,21	0,98

	41-45	-0,13	0,25	0,99
	46-50	-0,64	0,25	0,12
	21-25	-0,12	0,25	0,99
	26-30	-0,04	0,23	1
41-45	31-35	0,27	0,24	0,87
	36-40	0,13	0,25	0,99
	46-50	-0,51	0,27	0,42
	21-25	0,4	0,26	0,64
	26-30	0,47	0,23	0,31
46-50	31-35	0,78*	0,24	0,02
	36-40	0,64	0,25	0,12
	41-45	0,51	0,27	0,42

* The mean difference is significant at the ,05 level.

According to the Tukey HSD test results; job satisfaction levels of workers at 46-50 age group significantly higher than job satisfaction levels of workers at 31-35 age groups (Mean Difference=0,78; p=0,02).

5. Discussion

Individuals with high self-compassion levels tend to feel less depression, anxiety and burnout, thus feel more satisfied with their life and are more prone to positive affect. They also tend to evaluate the circumstances with a more balanced and optimistic point of view. As a result, these individuals tend to have higher job satisfaction levels.

This is believed to be the first study in Turkey examining the relationship between self-compassion and job satisfaction. However, it is limited to white collar workers in four different sectors operating in Istanbul. Replication of this study in blue collar workers, other regions and government institutions can generate additional data. Variations in self-compassion levels according to demographics can also be explored.

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Representations of concepts as a catalyst for change in teacher pedagogical content knowledge

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Abstract

Increased pressure to improve teaching quality has intensified the emphasis on the development of conceptual understanding in mathematics rather than reliance on procedural understanding. A particularly problematic content area is fractions. This article explores the shifts in pedagogical content knowledge for fractions in a group of 12 primary teachers during a professional learning project. Responses to a 'before and after' fractions task and reflective comments revealed the majority of teachers developed a more comprehensive understanding. We propose that emphasizing different representations of fractions for teaching, especially number lines and grids, has the potential to positively influence teachers' pedagogical content knowledge.

Teacher development; pedagogical content knowledge; fractions

1. Introduction and background literature

The early work of Shulman (1987), which explored the complexity of knowledge for teaching, has become a theoretical foundation for a large body of research into teacher knowledge and professional learning. Of Shulman's (1987) seven categories of teacher knowledge, it is *content knowledge* and *pedagogical content knowledge* that have received the most attention in research. Content knowledge is described as knowledge of a subject, in this case mathematics, and its organizing structures (Lowenberg Ball, Hoover, Thames & Phelps, 2008). Pedagogical content knowledge is the blending of content and pedagogy into an understanding of how particular topics or problems are organized, represented and adapted for learners (Schulman, 1987).

Many studies have focused on mathematical content knowledge of primary (elementary) teachers concerning weaknesses in their conceptual understanding and a reliance on procedural understanding (Hill & Ball, 2004; Ma, 1999). Although further research is needed into the relationship between the quality of a teacher's mathematical knowledge, effectiveness of instruction and student outcomes, there is already substantial evidence that causal link exist (Baumert & Kunter, 2010; Cobb & Jackson, 2011; Hill, Rowan & Ball, 2005). However, it is widely recognised that improving content knowledge alone is not sufficient for increasing the quality of teaching. A teacher must also develop pedagogical content knowledge to guide student understanding, through the skilful design of learning experiences, including the use of representations, explanations, examples, and by identifying and addressing student misconceptions (Ball, Lubienski & Mewborn, 2001; Baumert & Kunter, 2010).

A highly problematical area of mathematics for teachers is 'rational number', and in particular for primary teachers, the topic of fractions (Moseley, Okomoto & Ishida, 2007; Moss & Case, 1999; Lamon, 2007). A

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common research finding is that many primary teachers lack deep conceptual knowledge of fractions and rely on their knowledge of procedures, which is insufficient for teaching fraction concepts to their students (Baumert & Kunter, 2010; Forrester & Chinnappan, 2010). In the light of recent evidence that primary students' understanding of fractions and division is the key predictor of success in high school mathematics, the lack of fractions understanding by many teachers is alarming (Booth & Newton, 2012; Seigler, Duncan, Davis-Kean, Duckworth, Engel et.al., 2012).

Charalambous (2010) that a strong mathematical knowledge for teaching allows teachers to use "representations to attach meaning to mathematical procedures" (p. 273). The implication is that teachers without conceptual understanding of fraction concepts and their representations will not be able to explain 'why' a procedure (like finding a common denominator before adding two fractions) works, or even why it is necessary. A comprehensive conceptual understanding of fractions involves knowledge of a range of constructs for fractions (such as part-whole, measure and division) and a corresponding range of representations (such as area models, discrete items and number lines), as these form the foundation of image-making before students can work abstractly with fractions as numbers (Clarke & Roche, 2009; Gould, 2006; Lamon, 2007).

Previous research has demonstrated that the teaching of fractions is typically limited to the part-whole construct as modelled by area diagrams such as shaded parts of circles (Clarke & Roche, 2009; Lamon, 2007). A commonly taught procedure for fractions is that of multiplying the numerator and the denominator by the same number to produce an equivalent fraction. Recent research points to the importance of developing an understanding of the multiplicative structure of equivalent fractions as a basis for deducing a mental strategy rather than simply being taught a procedure (Pearn, 2007; Wong & Evans, 2011). Facility with equivalent fractions is critical for operations with fractions and for proportional reasoning. Another recent direction highlights the importance of students working with number lines to express the magnitude of fractions because build on their existing conceptions of whole number (Moss & Case, 1999; Seigler, Fazio, Baily & Zhou, 2013). This representation connects with the construct of fractions as a measure, in which unit fractions a conceived as units of measure can be iterated along a length (number line) to show a cumulative distance from zero.

The review of literature suggests that to improve teachers' capacity to teach fractions, professional learning activities should:

- address both content knowledge and pedagogical content knowledge, including attention to common misconceptions,
- promote conceptual understanding rather than procedural understanding,
- explore the different constructs for fractions and associated models,
- include a focus on representations of fractions that support multiplicative thinking and proportional reasoning, and
- include the use of number lines to model the magnitude of fractions as numbers.

It is important to note that the items listed here integrate both content and pedagogy is reflective of the theoretical perspective of this study that the two become intertwined in the context of professional learning for practicing teachers, and are arguably of equal importance for improving student learning. This supported by other researchers (Darling-Hammond and Richardson, 2009; White, Mitchelmore, Branca & Maxon, 2004) and justifies the emphasis placed on *pedagogical content knowledge* in this study.

The aim of the present study is to explore changes in the *pedagogical content knowledge* (PCK) for fractions in a group of primary teachers involved in a professional learning project encompassing the foci listed above

2. Methodology

The exploratory study was guided by two specific research questions and drew on qualitative data from written sources provided by each teacher:

- What patterns in pedagogical content knowledge of fractions and content knowledge in a pedagogical context can be detected in the cohort of teachers?
- What is the nature of change in individual teacher's knowledge?

2.1. Context and participants

The broader context for this study is the *Empowering Teachers of Mathematics Project* which is a funded two-year project (2012-2013) involving two cohorts of middle-years teachers (late primary and early secondary) in the Sydney metropolitan area of Australia. The ETM project has the dual aims of developing teachers' knowledge and pedagogy in mathematics, and their understanding of the role of motivation and engagement of students in mathematics learning. The overall approach of the project embodies all of the principles identified by Darling-Hammond and Richardson (2009) from their review of effective professional development, specifically that it:

- Deepens teachers' knowledge of content and how to teach it to students.
- Helps teachers understand how students learn specific content.
- Provides opportunities for active, hands-on learning.
- Enables teachers to acquire new knowledge, apply it to proactive and reflect on the results with colleagues.
- Is part of a school reform effort that links curriculum, assessment, and standards to professional learning.
- Is collaborative and collegial.
- Is intensive and sustained over time. (p.49)

The teachers ranged from to teachers with over 20 years experience, and were from a cluster of six primary schools and two high schools. This particular study focuses on the 12 primary teachers from the 2012 cohort in their first 6-month cycle of the project that involved three whole-day meetings interspersed with periods of teaching experimentation. During each of the three days the teachers participated in workshops on fractions of one to two hours duration intended to increase their conceptual understanding and included the following activities:

- Information and practical activities dealing with the fraction constructs of part-whole, measure, division, operator and ratio – with 'teacher friendly' research articles supplied for further reference.
- Various ways to model fractions with particular emphasis on using arrays and grids to promote multiplicative thinking strategies for equivalent fractions, and using number lines to sequence and compare fractions.
- Patterning tasks and grid models to reveal the vertical and horizontal multiplicative structure of equivalent fractions.
- Scaffolded analysis of the fraction assessment results for their own students, and the cohort's results, with emphasis on common errors, misconceptions and the appropriateness of representations of fractions.
- Reflective discussions on their teaching experiments.

2.2. Data sources

Before commencing the project, the teachers individually completed an open-ended written task, as displayed in Figure 1. This task was repeated four months later (Referred to as Time 1 and Time 2). The task was designed to provide an indication of each teacher's content knowledge, but within a pedagogical context. This type of open-ended task has been previously used in research as a qualitative survey instrument and is favored as a means to minimize the stress associated with 'testing' teachers on their mathematical knowledge (Dole, Clarke, Wright, Hilton & Roche, 2008; Hill, Ball & Schilling, 2008; Watson, Beswick & Brown, 2006). A 'comparison of fractions task' was chosen because such tasks are mathematically rich in solution strategies, commonly used in middle-years classes and are known to cause difficulties for students (Clarke & Roche, 2009).also asked to write reflections at the conclusion of Cycle 1 and were invited to comment on what they had chosen to explore with their classes and what learning they had experienced themselves. It is important to note that the teachers were not compelled to utilize any of the material presented to them in the project workshops, but rather were encouraged to respond to the learning needs of their students using whatever approaches they thought might be most effective.

Student Task: Which fraction is larger $\frac{2}{3}$ or $\frac{5}{6}$? *Draw and write* something to explain your reasons.

Your task: Give three examples of student responses (correct or incorrect) to this task and comment on the likely thinking behind each response.

Fig. 1. Teacher task for Time 1 and Time 2

2.3. Analysis

Baker and Chick (2006) developed a *Framework for Analysing Pedagogical Content Knowledge* that deconstructs teacher pedagogical content knowledge into three categories (Clearly PCK, Content Knowledge in a Pedagogical Context and Pedagogical Knowledge in a Content Context) and 16 sub-categories, providing the basis for fine-grained analysis of data (See also Chick, Baker, Pham & Cheng, 2006). The framework recognises the important role of content knowledge, yet highlights the difficulty of separating it from pedagogy with practicing teachers. The framework was developed within a broader range of data sources than was available for this study, so for its specific application in this study some of the sub-categories were omitted due to a lack of relevant data. The modified framework appears in Table 1, where a brief explanation of each sub-category is provided.

The modified *Framework for Analysing Pedagogical Content Knowledge* was utilised as the basis of a *directed content analysis* approach (Hsieh & Shannon, 2005), which takes a deductive approach for detecting specified attributes in the data. The analysis process began by assigning a code to each sub-category in the framework. Each teacher's written response to the 'fraction comparison task' was carefully scrutinised independently by two members of the research team, and the codes used to tag segments detected in the text and diagrams that matched the descriptors. The two researchers then compared and debated every tagging until all discrepancies were resolved and all text segments were accounted for.

In addition to the coding process the researchers noted significant observations for each teacher's task responses, such as 'focus on equivalence', or 'incorrect diagram', and what type of representation they drew. This allowed the text segments, including diagrams, to be viewed in two ways - as qualitative examples of each sub-category from which additional information could be extracted, and as countable items to build frequency data. All of the data were recorded in a table to facilitate comparison of the data sets for 'before and after'.

The text gathered from the teachers' reflections on their teaching experiments and their own learning was not extensive and so was subjected to a basic open-ended content analysis process of reading and highlighting the key points, then classifying these into categories. This qualitative information was used to enrich the interpretation of task data by providing the teacher's own perspective of their learning, as well as some context for any changes detected between the before and after tasks.

Table 1. Analysis framework for pedagogical content knowledge (Adapted from Baker & Chick, 2006)

PCK Category	Evident when a teacher.....
Clearly pedagogical content knowledge	
Student Thinking	Discusses or addresses student ways of thinking about a concept, or recognises typical levels of understanding.
Student thinking – Misconceptions	Discusses or addresses student misconceptions about a concept.
Appropriate and Detailed Representations of Concepts	Describes or demonstrates ways to model or illustrate a concept (can include materials or diagrams).
Content Knowledge in a pedagogical context	
Deconstructing Content to Key Components	Identifies critical mathematical components within a concept that are fundamental for understanding and applying that concept.
Procedural Knowledge	Displays skills for solving mathematical problems (conceptual understanding need not be evident).
Methods of Solution	Demonstrates a method for solving a mathematical problem

3. Results and discussion

This section is organized into two main parts aligned to the two categories of the analysis framework, and combines the data from the three sources. As will be seen in the presentation of findings, the strongest themes to emerge were the changes in the teachers' use of representations of fractions and their increased attention to multiplicative relationships and structures.

3.1. Patterns in pedagogical content knowledge

3.1.1. Student Thinking

The Fraction Comparison Task required the teachers to provide three examples of student responses to the comparison-task and comment on the hypothetical students' thinking. It is natural therefore that most text segments related to student thinking (see Table 2 for frequencies).

In Time 1 many of the comments student thinking mentioned the use of equivalent fractions to solve the task, but multiplicative thinking was rarely mentioned. For example, "*The student can visualise the equivalence between thirds and sixths and present it to show her understanding*" (Teacher A, task T1), and "*Understanding of equivalence but not how to show pictorially*" (Teacher C, task T1)

In their reflections on their teaching experiments in the following months, all teachers mentioned working on equivalent fractions with their classes and some also covered improper fractions. Of the 12 teachers about half explicitly mentioned a focus on multiplicative thinking, most refer to arrays and grids to support their students' thinking about factors and multiples, particularly related to equivalent fractions. For example, "*We explored the multiplicative approach & children became aware of the value of knowing times tables and the importance of understanding them*" (Teacher O reflection); and, "*I also pushed 'multiplicative' thinking and using arrays to represent fractions. This has shown improved results already.*" (Teacher P reflection), and "*Using a multiplicative approach rather than an additive approach - this was valuable for children to represent fractions and understand relationships between Mixed/Improper fractions*" (Teacher J reflection).

Table 2. Frequency of each sub-category of Pedagogical Content Knowledge evident in Time 1 and Time 2 teacher responses

	Clearly Pedagogical Content Knowledge					
	Student Thinking		Student Thinking – Misconception		Appropriate & Detailed Representation of Concept	
	T1	T2	T1	T2	T1	T2
Totals	32	31	14	5	14	25

The teachers' exploration of multiplicative thinking with their real students was reflected in their suggested responses for hypothetical students in the Time 2 task, as illustrated in Figure 2. A third of the teachers explicitly identified multiplicative thinking in Time 2, whereas no mention at all had been made in Time 1.

Student Response Example 1	Comment on student 1 thinking
<p>$\frac{5}{6}$ is larger than $\frac{2}{3}$</p>	<p>I shaded in $\frac{2}{3}$ and I shaded in $\frac{5}{6}$ so I know that $\frac{2}{3}$ must be smaller than $\frac{5}{6}$.</p> <hr/> <p>Students are now using a multiplicative approach rather than representing fractions using 'pies'</p>

Fig. 2. Teacher response showing attention to multiplicative thinking (Teacher J task T2)

In their reflections, seven teachers wrote about developing conceptual understanding in their students rather than only procedural knowledge, indicating an awareness of its importance. The following example, referring to a procedure for making equivalent fractions, also demonstrates an awareness of the role of modeling the multiplicative relationships; “*I have also given a lesson on multiplicability using visuals. The students are able to multiply fractions using the standard method but they are beginning to understand why you get the answer rather than just presenting the answer*” (Teacher R reflection). Students’ use of meaningful representations to support the explanation of fraction equivalence is considered to be a sign of progress towards conceptual understanding (Wong & Evans, 2011)

Although not specifically asked to comment on student misconceptions, there were 14 instances in Time 1. Indeed, Teacher F offered only incorrect solutions and student misconceptions. Most student-misconception examples were given as the third and final response, perhaps suggesting that some teachers did not have a third correct solution approach to offer. This may help to explain the reduction in the number of student misconception comments to only five in Time 2, because the number and variety of correct solution methods increased. However, understanding common misconceptions that children have and knowing how to remedy them is an important part of teacher knowledge (Ball, Lubienski & Mewborn, 2001; Baumert & Kunter, 2010). The reduction in attention to student misconceptions in Time 2 perhaps points to a weakness in task design, which could have requested that one example illustrated a common misconception, thereby avoiding the loss of information about teacher knowledge of this aspect.

3.1.2. Representations

Although the task instructions said “draw and write”, less than half (14) the responses included an appropriate visual representation of the two fractions in Time 1 (Table 2). All but two representations were either an area model shown as circles or as rectangular strips, as illustrated in Figure 3. The remaining two representations were a two-by-three grid, and a set of discrete items depicting an incorrect solution. All of the diagrams illustrated the part-whole construct of fractions, although a few of the teachers who drew rectangular strips with some sections shaded specifically referred to length rather than area in the written comment, suggesting awareness of the ‘fractions a measure’ construct. However, the transition from perceiving a part of a rectangular strip as an area to focusing instead on its length can be problematic for students as they can hold contradictory images in their minds instead of reconciling the interpretations (Gould, 2011).

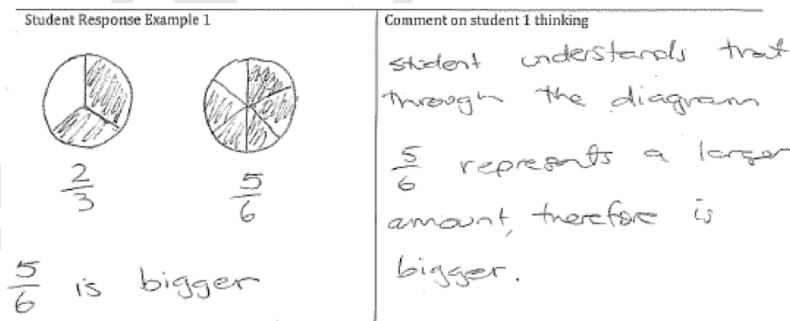


Fig. 3. Teacher response showing use of an area model to show part-whole fractions (Teacher H task T1)

The Time 2 responses presented an increase in both the number and variety of representations with a total 25 diagrams (Table 2). The most striking change was that ten teachers used a number line to illustrate the comparison (none were used). An example of such a response is shown in Figure 4. In their reflections about half the teachers spoke of using number lines with their classes “*to show students how fractions can be compared on*

a number line” (Teacher P reflection), and to sequence fractions, including fractions greater than one and mixed numerals. Most teachers also included an area diagram (mostly rectangular strips) and there were four instances of grids. The increased use of number lines is considered a positive shift, as this representation is more likely to connect constructively with students’ understandings of whole number (Pearn & Stephens, 2011)

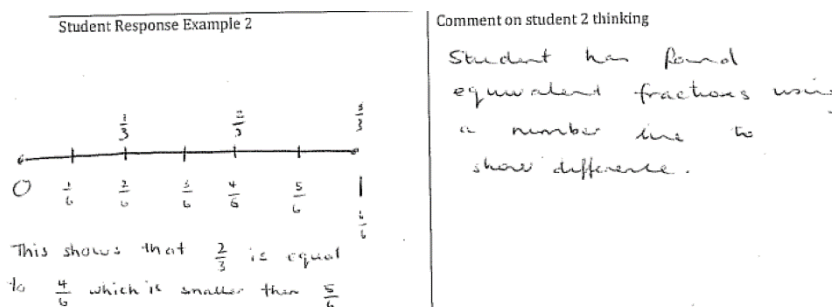


Fig. 4. Teacher response showing use of number line to compare fractions (Teacher C task T2)

In their reflections all 12 teachers wrote about deliberately using specific representations of fractions, such as folding paper to model fractions with odd denominators, fraction walls and grids to support their students better understanding fractions. The quotation illustrates one teacher’s growing understanding of the role of fraction representations for children’s understanding.

“I have realised how many forms fractions can take and how often things I have taught separately should, in fact, be taught as one. I have also learned how difficult fraction concepts are for children to comprehend and how important visualising/ making them is. I have begun working on different ways of expressing equivalent fractions visually with the children. I was surprised when some of the usually quick mathematicians had difficulty distinguishing thirds from halves and quarters”. (Teacher A reflection)

3.2. Patterns in content knowledge in a pedagogical context

3.2.1. Methods of solution

Most teachers three responses the majority examples of correct solutions. However, the repertoire of distinctly different solution methods was somewhat limited, with only a quarter (3) of the teachers showing three different correct approaches to solving the task. This doubled to six teachers in Time 2 (see Table 3). The similarity in the figures (Table 3) for the Methods of Solution and the Procedural Knowledge is not coincidental, as in this particular task it was natural for the teachers’ examples of solutions to illustrate a procedure for comparing the fractions. Note that the interpretation of ‘procedural knowledge’ was quite broad and not intended as necessarily indicative of the absence of conceptual knowledge. The increase in the range of solution methods was also closely associated with the increased range of representations used for the fractions.

Table 3. Frequency of each type Content Knowledge in a Pedagogical Context Time 1 and Time 2 teacher responses

	Content Knowledge in a Pedagogical Context					
	Deconstructing Content to Key Components		Procedural Knowledge		Methods of Solution	
	T1	T2	T1	T2	T1	T2
Totals	17	28	21	27	23	27

3.2.2. Deconstructing Content to Key Components

The number of key components identified by teachers within their comments about student thinking increased from 17 in Time 1 to 28 in Time 2 (Table 3). The most common aspect of content mentioned both times was 'equivalence of fractions' which is not surprising given the task of comparing fractions. However, 'equivalent fractions' is a high order concept that can be further deconstructed. The Time 2 responses contained more instances of the characteristics of equivalent fractions in this context, like 'multiples', 'same denominators', 'same size', 'same position on number line', 'multiplicative' relationship. Other content components included 'equal parts', 'meaning of the denominator' and 'same size wholes'. While these content components were clearly identifiable within the text, they were intertwined with the teachers' methods of solution, representational choices and explanations of student thinking.

Overall there were no discernable differences in the responses of early career teachers (C, J, P & Q) to their more experienced colleagues. There is some contention in the literature about the significance of experience in determining PCK, with some saying novice teachers (1-5 years) lack the skill to recognize and practice the connections between content and teaching strategies (for example, Wilson, Shulman & Richert, 1987). Others assert that disposition towards reflection on content knowledge is a more important factor (Hoz, Tomer & Tamir, 1990). However, most of this research involves secondary teachers rather primary teachers, so its direct relevance is uncertain.

4. Conclusions

This study focused on the impact of two particular aspects of fractions – the multiplicative structure of fractions and fractions as numbers with a magnitude. These aspects were communicated to a group of teachers via particular representations, namely; arrays and grids promote conceptual understanding of the multiplicative relationships in fractions and the number line to show fractions as numbers having value and a position on the line relative to other numbers. The teachers' responses to a task designed to assess some of their pedagogical content knowledge, and their reflections on their own teaching experiments, indicated that working with these foci led to changes in both their knowledge of fractions concepts and in their teaching practice.

The implications of these findings are heavily constrained by the study's limitation to one task and one set of reflections with one group of teachers. However the shifts in the teacher responses to the written task around the use of representations of fractions clearly suggest that attention to this aspect of fractions has the potential to enhance pedagogical content knowledge. This proposition is supported by the teachers' self-reported teaching experiments applying these approaches, which indicated some improvement in the conceptual understanding of their students.

The evidence warrant further investigation of the impact an expand understanding various representations teacher pedagogical content knowledge. A second study will look for connections between changes in the teachers' responses to the comparison task and changes in their students' responses to related tasks from the fractions pre and post-test used in the larger ETM Project. Working with a second cohort of teachers will also

provide the opportunity to expand the data sources to include more than one written task, as well as collecting some rich data through teacher interviews and lesson observations.

The increased pressure from education authorities and governments to improve the quality of mathematics teaching and student learning creates the situation where the identification of high impact approaches in teacher development make research of this nature urgent.

Acknowledgements

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Research Communiqué on the Use of Animated Cartoons in Teaching English to Children with Disorders and Disabilities

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Abstract

The following paper focuses upon the issue of using animated cartoons in teaching English to young learners with Special Educational Needs. The research conducted in one of the Polish integrated primary schools aimed at examining the influence of video on children's vocabulary attainment. The present communiqué is concerned with general data evaluation and with a more in-depth analysis of particular cases of pupils with disorders and disabilities. As a final point, some pedagogical implications are drawn from the study.

Keywords: animated cartoons, video, children with disorders, children with disabilities, special educational needs, inclusion, integrated primary school, foreign language teaching, English as a foreign language, young learners

1. YOUNG LEARNERS OF ENGLISH IN THE VIDEO ENVIRONMENT

Broadly speaking, young learners feel at ease with video, but they may not recognize it as a teaching aid. Watching video in a domestic environment brings certain positive connotations of pleasure and entertainment. Thus, when presented with a video material in the classroom, children often expect to be entertained. Of course, learning and fun do not exclude each other, but learners have to be guided in advance in order to understand the instructional value of a film or a programme (Lonergan, 1992). Since children associate video with relaxation, the way they watch it may tend to be passive and uncritical, whereas the use of this medium for a pedagogic situation requires that they watch in a slightly different manner – actively, directing attention in a constructive way (Walker, 1999).

Understandably, the best medium appealing to children is a cartoon. Apart from those aimed at entertainment, some are used also in educational programmes. Perhaps the most prominent example of an educational television, although designed for native English speakers, is the American series *Sesame Street*. For more than 40 years, it has used puppets, animation, stories, etc. to amuse and instruct children around the world. In the article *Children's learning from television*, Fisch (2005) cites more than 35 international studies which all affirm the learning benefits from *Sesame Street*. For instance, one study “showed that high school students who had watched educational television – and *Sesame Street* in particular – as pre-schoolers had significantly higher grades in English, Mathematics, and Science in junior high or high school” (Anderson et al., 2001 in Fisch, 2005).

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Although there is a great number of educational videos available, this does not necessarily mean that all are equally effective. What is then that causes some to be more powerful than others? According to Fisch (2005), we can identify some features that contribute to the effectiveness of video on children. First of all, a given video should engage young students through the use of appealing elements, such as mysteries or humorous situations and dialogues. Moreover, it should constitute an action-filled visual rather than a static, “talking” one. Obviously, the topic has to be age-appropriate, inherently interesting to children and relevant to their lives. As for the characters, they should be viewed by pupils as competent and intelligent, with whom they can identify. Clearly, the content of the storyline ought to be presented via clear and direct language, at a level of difficulty tailored to children’s knowledge of the world and cognitive development. Taking these factors into consideration, individual episodes should convey a small number of ideas, draw explicit connections among them and reinforce the concepts through repetitions. Also, children are to be encouraged through participation, e.g. by attempting to solve a problem before the on-screen characters do it. Naturally, the list of factors is not exhaustive, but may be useful for teachers while selecting appropriate material to integrate into the classroom practice.

According to brain research, younger school-aged children can focus in direct instruction for approximately 5-12 minutes (Jensen, 1998 in Schulz, 2006). No matter what type of video is chosen, after 10 minutes of passive viewing, a child’s focus on the subject matter begins to wane (Adams and Hamm, 2001 in Schulz, 2006). Because children are unable to stay concentrated on one thing for longer than a few minutes, a teacher needs to select media which can be divided into smaller but complete segments, accommodating the student’s attention spans.

2. SENSORY STIMULATION OF CHILDREN WITH SPECIAL EDUCATIONAL NEEDS

Multisensory presentation of lexis through the use of video may be both appealing to young learners and effective, unless it is introduced prematurely. Considering the cognitive development of children, elementary students are well apt for watching videos in order to learn from them. As presented in research, even students with various disabilities can benefit from video-assisted language learning and this fact should not be undervalued.

Just to mention one study, Xin and Rieth (2001) investigated the effects of using video technology as a tool for facilitating vocabulary acquisition of students with learning disabilities. Seventy-six, 4th, 5th and 6th - grade students were randomly assigned to either a video or a nonvideo instructional group. The video instruction group learned word meanings and concepts in videodisc based contexts, while in the nonvideo group teachers taught students word definitions. All students were administered pre, post, and follow-up tests two weeks after the completion of the intervention phase on word acquisition, generalization, and passage comprehension over the 30 target words taught. Findings indicate that students in the video instruction group had statistically higher word acquisition scores than those in the nonvideo instruction group. As can be deduced from this study, video provides sensory stimulation, depicts movement that can lead to the formation of mental images and exposes students to both auditory and visual cues. Unlike an abstract definition, video depicts a real situation and makes

otherwise difficult information seem relevant. Research indicates that students that are taught using video-assisted instruction outperform students that engage in traditional instruction in knowledge of word meanings.

Since today SEN (Special Educational Needs) students move to more inclusive environments, they are increasingly challenged with learning and retaining material from the general education curriculum. As far as EFL teachers are concerned, one challenge for them is to find appropriate methods that would help their exceptional pupils to learn and remember foreign vocabulary. This issue may be problematic because of the children's learning difficulties, but partially solved through the use of video.

3. STUDY ON THE USE OF ANIMATED CARTOONS IN TEACHING ENGLISH TO CHILDREN WITH DISORDERS AND DISABILITIES

The overall aim of the study conducted was to investigate how much vocabulary can children who attend inclusive classrooms learn from video-assisted lessons as well as to find out whether video-assisted teaching proves to be an effective and likeable vocabulary teaching support for both children without learning disabilities and those with SEN.

3.1. Research structure

The study was conducted in the Ludwika Wawrzyńska Integrated Primary School No.105 in Cracow in two inclusive second grade classrooms. It involved a total of 28 students: grade II "a" – 13 (5 with SEN), grade II "b" – 15 (5 with SEN), though none with hearing or visual impairments.

The construction of the research was mainly inspired by Szpotowicz's (2009) study on factors influencing young learners' vocabulary acquisition and by Sun and Dong's (2004) experiment on supporting children's English vocabulary learning in multimedia context. Three main research instruments were used: vocabulary recognition tests, vocabulary production tests and a small questionnaire investigating pupils' attitude towards video-aided EFL lessons. Understandably, before each and every test a vocabulary pre-test was done, which would look similar to the recognition vocabulary test. Additionally, one learning support method was used with both classes, namely a 5-min Target Warming-up (TW) session, which would take place before children viewed the videos.

3.2. Teaching material

A special learning material to facilitate vocabulary learning among children in inclusive classrooms was selected for the purpose of the study. Appropriate 10 minutes long segments from *Magic English*, a popular educational DVD programme designed for EFL teaching, were played to both classrooms, but during the projection sessions grade II “a” was not provided with any kind of support, whereas grade II “b” was supported by the teacher (in the case of nouns and adjectives those were flashcards in A4 format with pictures + repetitions, in the case of verbs – children imitated the actions and repeated the words).

3.3. Research procedure

The method used in the study was a quasi-experimental action research (Wallace, 2006) with a didactic perspective. It lasted six weeks and consisted of two parts. The first concentrated on the vocabulary attainment of students and the second on their attitude towards the video-aided instruction. A preliminary pilot study was conducted before the main one, in order to check the feasibility of the chosen tools and to improve the research design, but its results will not be discussed in the present communiqué.

In the recognition vocabulary test subjects were tested collectively. Each child was given a worksheet consisting of several pictures from the previously watched video. The worksheet included target vocabulary items (nouns, verbs, or adjectives) plus a distractor. During the test me as the researcher would read aloud the words and say what numbers they are. Pupils would mark the pictures with the appropriate numbers I called out and put on the blackboard in order to exclude the possibility of mistakes in students’ marking.

In the production vocabulary test students were interviewed individually. They were asked to name the objects presented on flashcards. I would note down and score the quality of pupils’ production in the following way: 3 points if the child recalled the word correctly, 2 points if the child recalled the word but mispronounced it, 1 point if the child remembered only a part of the word, 0 points if the child was not able to recall the word at all. Articles were not taken into account.

As already mentioned (3.1.), one learning support method was used with both classrooms, namely a 5-min Target Warming-up (TW) session, which would take place before the projection of the videos. In this session I would display each target word (printed on a flashcard – A4 format, font similar to the one used for captions), read

the word aloud and ask the class to repeat it several times. This session was used to familiarise young learners of English with each word's pronunciation. Children would then be asked to watch the video and guess the meanings of the target words. The following instruction was given: "You're going to watch an interesting cartoon in English. All the words we've just practised will appear in the video. Please watch it carefully and try to guess the meanings of these words."

Each video was projected twice with the use of a computer and an overhead projector. From the researcher's observations results that for the first time children concentrated more on the plot and simply enjoyed the characters' capers. Only during the second viewing, they started to grasp the meaning of the target words.

The reason for conducting the TW session was the assumption that young learners would behave more actively and intentionally and pay more attention to the English input when having clear goals set before watching the cartoon. Furthermore, it was expected that this method would improve children's pronunciation of the target words and their ability to infer the meanings of these words from the context.

What is most important, class II "a" had no support while watching the videos, whereas class II "b" was supported by the teacher during the projection sessions (in the case of nouns and adjectives those were flashcards with pictures + repetitions, in the case of verbs – children imitated the actions and repeated the words). No translation was given, so even children from class II "b" had to discern the meaning of the target words themselves.

The interview concerning students' attitude towards the video-assisted instruction was done after the whole project. To avoid young learners' untrue responses (e.g. given to please the researcher), it was not me who interviewed the subjects. Pupils were interviewed in Polish, their native language, and the person talking to them was the English teacher that normally conducted lessons in both classroom. In this part of the study, the Thurstone scale (DeVellis, 2003) was used, which required individual pupils to either agree or disagree with a few statements about the video-aided lessons they had experienced.

3.4. *General results*

Without going into detailed statistical calculations, percentile results will be presented in three categories: nouns, verbs and adjectives, respectively.

The non-supported class remembered and recognised passively 61 % of newly introduced nouns, of which they were able to actively recall 51 %. The supported class performed better in both tests: they recognised 89 % of the new vocabulary items, of which they recalled 66 %.

When it comes to verbs, the non-supported class remembered and recognised passively 42 % of the new vocabulary items, of which they were able to actively recall barely 29 %. On the contrary, the supported class performed much better in both tests: they recognised 98 % of the new vocabulary items, of which they recalled 71 %.

Last but not least, the non-supported class remembered and recognised passively 57 % of new adjectives, of which they were able to actively recall 88 %. The supported class performed better in both tests: they recognised 88 % of the new vocabulary items, of which they recalled 71 %.

3.5. *Performance of children with Special Educational Needs*

By and large, SEN students from the WS group performed better in comparison to SEN students from the NS group, no matter of the type of learning difficulty. In this respect, they did not differ from the rest of the class. Obviously, SEN children cannot be treated as a homogenous unit. Each and every child could actually be treated as a case study. However, when I compared individual children with SEN's scores to the class means it turned out that they did not deviate from the norm. Of course, there happened to be single incidences of performance below the mean, but more often than not SEN students achieved percentages even over the class average. This unavoidably leads to the conclusion that SEN children who attend mainstream schools can achieve comparable success to the rest of learners, provided their special educational needs are met by teachers.

Two most interesting cases from the pedagogical point of view – one from the NS and the other from the WS group - will be scrutinised in this section in order to demonstrate that children with SEN must not be taken for granted as worse learners.

Subject A from the NS group has been diagnosed as a child suffering from Attention Deficit Hyperactivity Disorder, which is neurobehavioral. ADHD is characterised by “an ongoing inability to concentrate or be ‘attentive’ in given situations, alongside a frequent higher than usual level of acting-out behaviour, presented as impulsivity, forgetfulness and a susceptibility to distraction” (Garner, 2009). Generally, a child suffering from ADHD is more prone to experience difficulties in organising its school work. ADHD is also associated with other serious SEN, such as oppositional defiance disorder (ODD), an indicator of angry outbursts, temper tantrums and antisocial behaviour. Sometimes ADHD can contribute to anxiety disorders or other mental-health issues. The prognosis for children with ADHD is mixed, although a diagnosis of this disorder means the likelihood of impairments in life functioning, with a small percentage of the ADHD population continuing to study beyond compulsory schooling (Garner, 2009).

However, when we look at the subject’s tests results we can ask ourselves a question: How is it possible that a child with ADHD performed so well in comparison to the whole NS group average? Indeed, the boy remembered 100 % of the new nouns, while the class mean equalled 61 %. He also remembered almost the double percentage of verbs – 83 % as opposed to the average 42 %. When it comes to adjectives, subject A’s score was the same as the mean = 57 %.

Table 1. Subject A’s test results.

TEST	Nouns	Class mean	Verbs	Class mean	Adjectives	Class mean
recognition	100 %	61 %	83 %	42 %	57 %	57 %
production	40 %	51 %	13 %	29 %	42 %	32 %

From my personal observation of the subject's behaviour during the video projection sessions, I may conclude that an ADHD child can gain a lot from an English lesson if s/he manages to stay concentrated. Without doubt, the biggest challenge for teachers is to make an ADHD student calm and attentive. In the course of six weeks I had the chance to observe subject A in different problematic situations, e.g. at the beginning of the lessons or during breaks, when he was fidgeting with whatever was at close hand, moving around and trying to disturb others. However, when a video started and he became interested in it, all the problems just faded away.

Subject B from the WS group has been diagnosed as a child suffering from Asperger syndrome (AS), which is a developmental disorder that falls within the autism spectrum. AS is characterised by difficulty in four main areas: social interaction, communication, imagination (e.g. imagining what others are thinking), sensory sensitivity (Winter, 2004). Lorna Wing (1983 in Winter, 2004) described the main clinical features of AS as: lack of empathy; naïve, inappropriate and one-sided interaction; little or no ability to form friendships; pedantic, repetitive speech; poor nonverbal communication; intense absorption in certain subjects; clumsy and ill-co-ordinated movements and odd postures. Children with AS can also be diagnosed with other SEN, e.g. ADHD or dysgraphia. On the other hand, AS children tend to be honest, creative and dedicated. Tony Attwood (in Winter, 2004), an English psychologist and an author of several books on Asperger Syndrome, described it as a different way of approaching life, one that is dominated by the pursuit of knowledge and truth.

As can be observed in the table below, the subject's scores are very high. He remembered and recalled 100 % of new nouns and verbs, while the WS group's means were 89 % and 88 %, respectively. Although during the projection sessions the child seemed not interested in the cartoons at all and showed no enthusiasm, in fact he caught the meaning of all new vocabulary and, what is even more striking, he was able to pronounce it correctly. When it comes to verbs, the boy scored below the class average in the recognition test – 86 % as compared to 98 %. Still, his result was quite high.

Table 2. Subject B's tests results.

TEST	Nouns	Class mean	Verbs	Class mean	Adjectives	Class mean
recognition	100 %	89 %	86 %	98 %	100 %	88 %
production	100 %	66 %	78 %	71 %	100 %	71 %

One can think that the subject should have performed flawlessly, considering the TPR support provided. I speculate that, contrary to common belief, TPR created chaos in the classroom and in this respect did not help the child with Asperger. Children were moving around, imitating the actions, while subject B remained seated, with his head lowered, and was about to cry. I was not able to persuade him to participate in the activity and simply resigned not to aggravate the situation. The class teacher later explained me that subject B was a very intelligent, but reserved child preferring individual work to group activities.

3.6. Young learners' attitude towards video-aided EFL lessons

The results of the oral questionnaire demonstrated subjects' positive attitude to the video-aided lessons they had experienced. Children had to take a stand (agree/disagree) on the following statements in their native language:

- 1) It is fun to use video during EFL classes.
- 2) Video helps me to remember new words.
- 3) At times I feel bored while watching video during EFL classes.
- 4) I prefer to learn new words from the coursebook rather than from a cartoon.
- 5) I would like to have video-aided classes in the future.

The overwhelming majority of young learners declared that it was fun to use video during EFL classes (100% of the WS group and 92% of the NS one). Interestingly, 100% of NS students affirmed that video helped them to

remember new words, although they performed significantly worse both in the recognition and production tests in comparison to the WS students, of whom 87 % believed that video aided them.

Nevertheless, one third (31%) of NS subjects admitted that at times felt bored while watching video during EFL classes and would prefer to learn new words from the coursebook rather than from a cartoon. A similar percentage (27%) of WS subjects had sometimes the sensation of boredom, but only one fifth of them (20%) would choose to learn vocabulary from a traditional coursebook. Tout ensemble, all NS and 93% of WS students would like to have video-assisted classes in the future.

4. Data evaluation and pedagogical implications

The findings from this study indicate that learning L2 vocabulary in a video-based context proves to be quite an effective technique for inclusive classrooms. However, since the difference between the two groups in terms of lexical gains was statistically significant, it can be argued that a learning support has to be provided by the teacher. Although the NS group managed to infer the meaning of and remember some new lexical items, their results were not as impressive as those of the WS class. Vocabulary learning under the NS conditions was incidental in nature, that is, even though children were given the instruction to pay attention to the words they were introduced to in the Target Warming-up session, they seemed not to be aware of the real purpose of the activity and, consequently, not engaged actively in inferring the new words' meanings. This may account for their worse performance on the recognition and production tests. Phonic acquisition might have also been impaired if learners had paid inadequate attention to the cartoon.

Moreover, the study might have provided yet another evidence to the generally shared assumption that both indirect and guided learning of vocabulary can be achieved by resorting to contextual clues. This calls for an important pedagogical implication for EFL teachers to use contextual materials such as video to assist students' vocabulary learning instead of explaining the words in an isolated manner.

Also, information gathered in the attitudinal interview is of crucial importance, since one of the researcher's attempts was to devise a vocabulary teaching technique that, apart from being effective, young learners would

simply like. As could be predicted, one third of students admitted that at times felt bored during the projection sessions, but still they generally enjoyed the video cartoons. No technique is perfect and none can please all students in 100%. Nonetheless, my aim was to respond to the majority of learners' needs in a heterogeneous inclusive classroom.

Based on many research articles studied and the present research conducted, video watching appears to have positive effects on children's vocabulary comprehension, to a lesser extent also on production. What is even more important, when it is accompanied by teacher support, it proves to be very effective in inclusive classrooms. All things considered, foreign language teachers should not become discouraged by students with SEN's educational ups and downs. All children can have better or worse days in their performance, but this definitely does not mean that they are unable to learn. Contrariwise, young learners should be constantly motivated and encouraged by teachers to release their potential, which is so often overlooked. However, due to the somewhat limited number of studies investigating specifically the effect of mode of instruction on vocabulary acquisition by children with Special Educational Needs, more research in this area is advisable.

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Research on quality of life of workers in school counseling centers for the visually and hearing impaired in the Czech Republic

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Abstract

The process of the integration of students with visual and hearing impairment within the intact students is unthinkable without the cooperation of the school guidance facilities. Counselors of these centers work closely not only with the students, their parents, teachers, but also with other cooperative institutions. In this paper we try to present, according to the research, how these counselors themselves are satisfied with their jobs. How they assess the job from different perspectives, and whether there are opportunities to improve the quality of their lives.

Keywords: quality of life ; counseling ; counselor ; students with special needs ; pupils with visual impairments ; hearing impaired pupil .

1. Introduction

After 1990 in the Czech Republic, the view of individuals with special needs within the society began to change and the process of their integration was commenced. In the area of school policy the most significant change took place in 2004 with the new Education Act No. 561/2004 Coll., which provides for equal access of individuals with special educational needs to education without any discrimination. The Act reflects the educational needs of an individual, ensures mutual esteem, respect, solidarity and dignity and overall personality development with an emphasis on cognitive, social, moral, ethical and spiritual values. Fulfilling these defined legal provisions should also lead to improved quality of life of individuals with special educational needs. During recent years, the term 'quality of life' has become widely discussed in the area of special education in the Czech Republic and there has been a lot of research dealing with the quality of life of individuals with special needs. On the other hand, there are no studies focussing on the quality of life of counsellors, who are in a daily and intensive contact with children and pupils with special needs, or with their families or school employees. Legal regulations applicable to employees in school counselling centres gradually increase their workload; however, the question that remains is whether the support of these employees increases as well. We believe that the effort aimed at assessing the quality of life of individuals with special needs should be correspondingly targeted at people in counselling professions, who largely contribute to the quality of life of individuals with special needs.

2. School counselling centres – special education centres

Professional counselling services rendered to children and pupils with special needs, their legal representatives and teachers present an integral part of educational systems in all developed countries (Hanák, 2008). In the Czech Republic school counselling centres are defined by Act No. 561/2004 Coll. and provide children, pupils,

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their legal representatives, schools and school facilities with information, diagnostic, counselling and methodological activities, ensure professional special-education and educational-psychological services, preventive educational care and help in the selection of appropriate education of children, pupils and students and their preparation for future professions. School counselling centres cooperate with social and legal child protection institutions and youth and family care institutions, health-care institutions and other authorities and institutions as required.

Special education centres (referred to as SECs) are school counselling centres defined by Decree No. 72/2005 Coll., which provide counselling services especially to children and pupils with special needs integrated in schools and school facilities. SECs are usually designated for a single type of impairment (hearing, visual, mental, etc.)

In our study we will address the issue of SECs only for children and pupils with sensory impairment, i.e. visual or hearing impairment.

The activities of SECs are performed on an outpatient basis in SEC centres and also by SEC employees visiting schools and school facilities or in families or institutions caring for pupils with special needs.

The work of SEC employees is based on a close cooperation with the family members of a child – according to the ‘Code of Ethics for SEC counsellors’ SEC employees should always explain to the parents the principle of each examination or professional intervention that the child undergoes, communicate the results of each examination, consultation or other services rendered to the child and last but not least consult with the parents the plans to support the child and optimize the child’s development including any alternative approaches.

With respect to the teachers of these children and pupils, SECs try to develop harmonic and cooperative working relations with school employees involved in the process of integration.

SECs also maintain significant cooperation with other institutions and organizations involved in their scope of activities.

SECs employ pedagogical staff consisting of a special pedagogue, psychologist and social worker.

2.1. Research

The following research was carried out in order to obtain basic information about the professional lives of special pedagogues in SECs focussing on children and pupils with visual and hearing impairment.

Data collection was performed by means of questionnaires consisting of 15 open-ended questions ‘satisfaction tables’ with scale assessment.

The first item focussed on the length of work experience in the respondents’ current job – i.e. SEC for children and pupils with visual or hearing impairment.

Table 1. : Length of work experience.

Length of work experience	
Work experience in the field up to 2 years	9
Work experience in the field up to 10 years	21
Work experience in the field up to 20 years	5

The results in Table 1 imply that the length of work experience varied among the respondents, the prevailing length of work experience was up to 10 years.

We further focussed on the assessment of the respondents' satisfaction with various factors of their professional life.

Table No. 2: Degree of job satisfaction.

Degree of job satisfaction	
Completely satisfied	14
Very satisfied	11
Fairly satisfied	10

The results show that the employees expressed satisfaction with their jobs.

Table No. 3: Change of job.

Change of job	
I am not thinking about changing my job	25
I am thinking about changing my job	10

This question was based around thinking about changing the current job (i.e. SEC). Over 70 % of respondents (25) do not consider changing their current position. Less than 29 % respondents sometimes think about changing their job. One respondent said that thinking about a job change was absolutely normal, particularly in a demanding work setting.

Table No. 4: Degree of satisfaction with career growth.

Degree of satisfaction with career growth	
Completely satisfied	4
Very satisfied	8
Fairly satisfied	16
Dissatisfied	4
Disappointed	3

The degree of satisfaction with career growth is evenly distributed around the mean value. Out of the total number of respondents, 45.71 % is fairly satisfied.

Table No. 5: Degree of satisfaction with availability of work-related materials.

Degree of satisfaction with availability of materials	
Completely satisfied	6
Very satisfied	19
Fairly satisfied	10

The degree of satisfaction with availability of work-related materials was in the positive half of the assessment scale for all respondents.

Table No. 6: Degree of satisfaction with meaningfulness of work.

Degree of satisfaction with meaningfulness of work	
Completely satisfied	21
Very satisfied	9
Fairly satisfied	5

None of the respondents was dissatisfied or disappointed, which we believe is a very important aspect in any job.

Table No. 7: Degree of satisfaction with work relationships.

	Completely satisfied	Very satisfied	Fairly satisfied
Degree of satisfaction with work relationships	9	22	4
I have support from my colleagues	9	20	1
I do not have support from my colleagues	0	2	3

The degree of satisfaction with work relationships was predominantly positive – 9 respondents were completely satisfied, 22 very satisfied and 4 fairly satisfied.

Table No. 8: Degree of satisfaction with family cooperation.

Degree of satisfaction with family cooperation	
Very satisfied	9
Fairly satisfied	26

The degree of satisfaction with family cooperation ranged between very satisfied (9 respondents) and fairly satisfied (26 respondents). None of the respondents was completely satisfied, dissatisfied or disappointed.

Table No. 9: Degree of satisfaction with cooperating institutions.

Degree of satisfaction with cooperating institutions	
Very satisfied	6
Fairly satisfied	29

Apart from families, SECs commonly cooperate with other entities, particularly schools and school facilities, SECs often cooperate with other special education centres and other organizations. Out of all respondents, 6 were very satisfied, 29 fairly satisfied.

Table No. 10: Degree of satisfaction with importance perceived by the public.

Degree of satisfaction with importance perceived by the public	
Completely satisfied	2
Very satisfied	6
Fairly satisfied	10
Dissatisfied	17

For the first time throughout the survey, the responses to this question showed significant dissatisfaction of the respondents.

Table No. 11: Degree of satisfaction with work schedule.

Degree of satisfaction with work schedule	
Completely satisfied	1
Very satisfied	9
Fairly satisfied	11
Dissatisfied	14

Similarly to the previous question, the responses indicated a higher degree of dissatisfaction.

Table No. 12: Physical and mental work demands.

	Mental demands	Physical demands
Yes	35	9
No	0	26

In the questionnaire survey we also focussed on physical and mental demands of work in SECs. The data indicates that the work is mentally demanding for 100 % of respondents. On the other hand, according to 74 % of respondents the work has low physical demands.

3. Conclusions

If we endeavour to increase the quality of life of impaired individuals (whether it be through integration, increasing the knowledge of parents or other professionals involved in child care, through a process of deinstitutionalization or a change in the perception of these individuals by the general public), we should also consider the conditions and motivation of SEC employees, who are an inseparable part of the process.

The aim of the research was to reflect on the knowledge about the professional lives of the employees of special education centres caring for children and pupils with visual and hearing impairment. The intention was not to assess the quality of professional lives of these employees. The main aim was to find out about the degree of professional satisfaction of these employees.

What are the conclusions? Possible areas to improve the quality of professional lives of counselling professionals reside primarily in deepening equal opportunities, harmonizing the interests of the employees and employers and improved conditions for self-realization of the employees. A significant aspect is also the meaningfulness of work and improved work and life conditions of the employees, who should be respected. At the same time attention should be given to their individual needs and decreased periods of adverse risk factors of the working environment.

A crucial part of increasing the quality of professional life is employee motivation and stimulation, primarily in terms of joint decision making about the length, arrangement and location of working hours, increased degree of work-related independence and support of professional growth, interests and other personal activities.

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Responsive web design: a new type of design for web-based instructional content

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Abstract

As the time passes by, more and more people surf through the Internet using mobile devices compared to a desktop computer. Recently, mobile device and computer screen designers have been trying to provide users with qualified web-browsing but this hasn't been able to afford adequately users' needs that are exposed to traditional website layouts. Therefore, there is a need to switch to Responsive Web Design which is capable of reshaping itself depending on various screen sizes and resolutions from largest screen sizes to smallest on mobile devices. Thus, the users will be exposed to the best experience with content visual display on the device or platform that they are viewing it on. This is more significant when users are studying on instructional web-sites and pages not to decrease their concentration, motivation and performance on their study since the responsive web design automatically change page layout, resize the images or crop them proportionally. In the paper, the authors will inform the audience on Responsive Web Design by indicating an educational web-site as a sample and discuss about its features.

Keywords: responsive web design, instructional content, web-based

1. INTRODUCTION

Whenever a user enters a website, the most prominent and fundamental thing he looks for is whether he can access all info he required as quickly as he can with minimum effort. This requires provision of the best experience for the user with minimum resizing and scrolling while navigating the site (Sharkie & Fisher, 2013). Mobile device and computer screen designers have been trying to provide users with qualified web-browsing but this hasn't been able to afford adequately users' needs that are exposed to traditional website layouts. Therefore, there is a need to switch to a new design which is capable of reshaping itself depending on various screen sizes and resolutions from largest screen sizes to smallest on mobile devices, see Fig 1. Thus, the users will be exposed to the best experience with content visual display on the device or platform that they are viewing it on.

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Fig. 1. Mobile devices with various screen sizes and resolutions

The term “Responsive Web Design” was coined by Ethan Marcotte in 2010 on his “A book apart” website. Since then, many projects have been developed using his techniques (Rekhi, 2013). The term is often used to infer the same meaning as a number of other descriptions such as fluid design, elastic layout, rubber layout, liquid design, adaptive layout, cross-device design, and flexible design (Frain, 2012). RWD enables users the best practices while surfing on a website through a multi-device world such as smartphones, tablets, laptop besides desktops. It is time that the web site designs should allow user to respond to any devices like mobiles in portrait and landscape mode, tablets in portrait and landscape mode, laptops, desktops and monitors (Sharkie & Fisher, 2013). Rekhi (2013) states that the designers work is not huge in the development phase of a responsive web site which serves different screen resolutions since with the advent of CSS3 and its design techniques it is becoming easier and easier.

There are three key technical features a responsive web design holds:

- *Media queries and screen resolutions:* A designer should use HTML and CSS3 media queries so that the web site decides how to view the content depending on the screen of each device.
- *Fluid grid layouts:* Responsive web design works on multiple devices by using fluid proportion based grids. It allows the content to resize and rearrange as the percentage-based width of a webpage grid expands or contracts. Therefore, it targets the width of each user's web browser to determine how much space is available and how it should display the website.
- *Flexible images and media:* (through dynamic resizing): The responsive web design automatically changes page layout, resizes the images or crops them proportionally. Thus, there is no need to work on three separate designs for a designer. With the capability CSS3 script language, three dynamic screens are easily designed at one time. For a desktop screen, 1024 pixels width is kept; the same design is rendered on mobile devices (like Ipad) with 768 pixels width and the same design again rendered on smartphones (like Iphone, Galaxy etc.) with 320 Pixels width, see Fig 2.



Fig. 2. The blocks depicted for a desktop, an iPad and a smartphone in pixels

All these features should be implemented to have a responsive web design. De Graeve (2011) states that the key point is adapting to the user's needs and device capabilities. Besides, keeping a simple layout and HTML5 code as simple as possible is the first rule and every styling CSS3 and styling information should be removed.

1.1. Advantages of Responsive Web-Design

Some of the prominent advantages of responsive web-design are as follows:

- Broadcasts content on multi-devices at one-time by automatically resizing content to the screen by making it easily readable on every device.
- The content can be degraded if required. For instance we might have some images on a desktop version of our content which we do not want to present on the smartphone size version but the texts or vice versa; or a web page designed for access by smartphone might have fewer menu options than the one of a desktop.
- There is no need to zoom in or out since everything is readable and presented on any screen.
- Easy navigation with the provision of minimum of resizing, panning, and scrolling across a wide range of devices.
- The designer saves time and money by not maintaining a mobile friendly site. There is no need of it.

1.2. Limitations of Responsive Web-Design

Some of the limitations of responsive web-design are indicated below:

- Screen readers which translate web content into audio or Braille for handicapped might be confused by the systems.
- Unfortunately most mobile devices are not compatible with CSS3 media queries and not all browsers (i.e. Internet Explorer) support CSS3. With a Javascript Library Documents; however, this limitation can be eradicated.

- As RWD works on image resizing, the full image is downloaded on a user's device and then resized to fit the screen; sometimes it takes time and impacts performance of the website (Rekhi, 2013).

2. E-learning through Responsive Web Sites

Responsive Web Design offers ways to create a single site that responds dynamically to the devices viewing it. This is more significant when users are studying on instructional web-sites and pages as their concentration, motivation and performance on their study should not decrease while they are studying. While studying on an instructional web site, the audience should not waste their time for navigating, scrolling, paging. This not only effects their learning but also breaks their concentration. Besides, this might create huge "cognitive load" for the audience. Thus, with RWD, web-based instruction;

- is run on a more user-friendly learning environment for the learners,
- is more enjoyable, usable and readable through different mobile devices,
- is more effective since the learners' concentration are not broken and their motivation does not decrease with unnecessary navigation,
- HTML5 eradicates the problem of flash-based content which have often been preferred for the presentation of web-based instructional content.

The same standards and the approach behind Responsive Design are kept to run responsive e-learning. With the developments in HTML5, instructional designers can now develop a single e-learning module which will work on all devices.

3. The Design

The authors of the current study designed a web page depending on the principles of responsive web-design. The web site was in Turkish and about Distance Education.

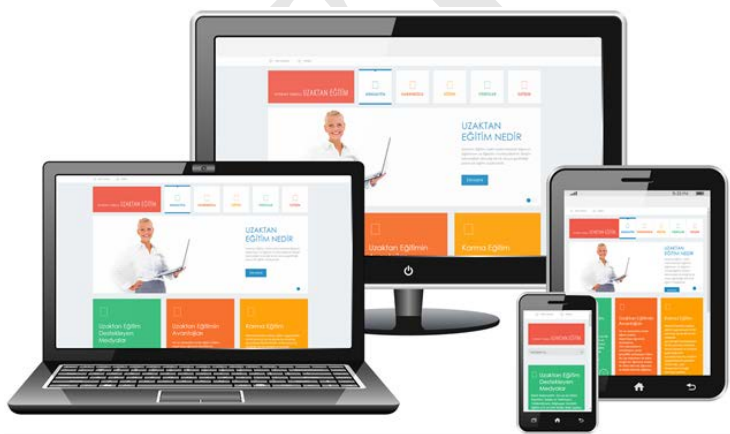


Fig. 3. The same design on a desktop, laptop, iPad and a smartphone

As indicated in Fig 3, the same piece of information is easily accessed on the web site through different devices like a pc, laptop, iPad and a smartphone. All applications present the same content almost in the same format which enable users to access the same piece of information in the same place with the same type of navigation. This facilitates users' work and eradicates time loss while they are looking for the same information on different devices. As seen, this design is more user-friendly.

4. Conclusion

Responsive Web design is still in its early stages, new designs will be offered as more and more screen sizes and form factors arrive, the conversation will continue.

Web designers will continue to offer different opinions and recommend directions related to whether to build for mobile first, how to fit these decisions into the design process, whether to slice up the comps into all the different screen sizes, and so forth. And

HTML5 and CSS3 standards are great help to web designers to deal with these issues. Responsive web design meets the challenges with traditional designs and it's clear that new standards will continue to evolve to handle the changing world of devices and browsers.

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Retaining mature knowledge workers: the quest for human capital investments

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Abstract

Knowledge society requires constant professional development since the growth no longer lies in improving efficiency but rather on workforce capabilities. Individual level of human capital in particular has become the key quality of labour upon which future economic growth is built upon. However workforce is aging in all developed countries and subsequently workforce aging will continue for decades. The skill shortages are predicted especially regarding knowledge-intensive occupations that raise question about competitiveness of organisations therefore mature knowledge workers do play an important role in workforce.

The purpose of the paper is to provide a discussion on integrative approach toward professional development of mature knowledge workers within the wider organizations' strategic plans to achieving competitive edge over those that ignore the demographic trends. The accumulation of human capital does not end with schools but is rather a constant process of professional development, a lever to augmentation and adaption of existing knowledge of an individual. Organizations that apply professional development of all the workers regardless of age will be able to rely upon human capital potential that can adequately adapt to internal and external business demands. Based on literature retrieval, the most important dimensions of professional development of mature knowledge workers are identified and the professional development framework proposed.

Keywords: mature knowledge workers, professional development, retention.

1. INTRODUCTION

All developed countries face the phenomena of workforce aging and it is predicted to continue for decades (Callan & Greenhaus, 2010; Voelpel & Streb, 2010). It will gradually result in skills shortage that is likely to become the central issue on the company level (Koc-Menard, 2009; Midtsundstad, 2011). Due to confrontation with skill shortages there is a need to develop skills and competences of existing workforce including mature-aged employees since they are forming increasing proportion of it (Smith, Smith & Smith, 2010). Knowledge-based economy focuses on human capital as the key source of economic growth (Cheng & Ho, 2001, Bernardin, 2003) and the challenge is mainly on knowledge workers. By constant professional development of mature knowledge workers knowledge is updated and companies are able to rely upon their potentials (Bangali, 2004, Jalette & Villeneuve, 2002). Although not always acknowledged adequately (Peterson and Spiker, 2005), mature knowledge workers are valuable sources of experiences and knowledge (Callahan, Kiker & Cross, 2003). In rapidly changing knowledge environment there is an absolute need to offer quality training programs to maintain

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workers' employability. The emphasis of training is common to advanced economies, because organisations can overcome competition issues only if workforce attains high levels of knowledge and skill and accordingly Brooke (1995) argues about the most important organizations' assets: "Few companies appear to have developed comprehensive strategies to overcome these skill shortages and even companies investing more on training tend to focus on the short term need for technical skills, rather than the longer term development of employees. In the long run, organizations are made or broken not by markets or capital patents or equipment, but by people."

Organizations' valuable assets in knowledge-based environment are more in employees than in machinery (Mellander, 2001). The rise of knowledge work has emerged in labour markets in all developed countries. Therefore there is a growing importance of knowledge as an economic resource that reflects technological development. There is shrinkage of jobs in the manufacturing in comparison to professional and service occupations that involve working with knowledge or people. In new economies business success no longer lies on improving efficiency, but rather on human capabilities (Pyöriä, 2005; Loretto & White, 2006) and human capital is generally worth five to ten times more than physical capital (Gill, 2009). Therefore human capital investment should have been set according to the increased value of knowledge. Rapid technological advancement brings opportunities to prolong working life since work is done by reduction of physical demand (Smith, Smith & Smith, 2010).

Even though a vast literature that in theory generally supports age management exists (for example Rocco, Stein & Lee, 2003; Brooke & Taylor, 2005; Leibold & Voelpel, 2006; and many others) research on professional development of mature knowledge workers is lacking (Picchio & van Ours, 2013). This study attempts to bridge the gap by offering the comprehensive discussion on personal and organizational determinants of professional development. The structure of this paper is divided into three sections. After reviewing the problems of workforce aging and skills shortage, the second chapter deals with the need for professional development strategies supporting professional development while the final chapter ends with concluding thoughts.

1.1. A mature knowledge worker definition

Knowledge worker is a worker that possesses problem solving skills and is able to produce knowledge that requires high level of intellectual capital (Mitchell & Meacham, 2011) whereas mature individual cannot be limped within a particular chronological age group since individuals differ considerably. Therefore age can just serve as a proxy (Kanfer and Ackerman, 2004). Ennis-Cole and Allen (1998) emphasise the importance of the adequate conceptualization of age that is based on maturation and is build upon personal and professional experiences. There are different threshold age categories, but most frequently researchers conceptualise individuals aged 50 and older as mature because it is the age when participation rate in labour market starts to decline (OECD, 2005).

1.2. The need to retain mature knowledge workers

Although Europe lost 5.5 million jobs due to economic and financial crises since 2008, according to the forecasts 83 million vacant working places are predicted in European labour market by 2020 mainly due to 75 million individuals retiring and only 8 million vacant working places due to job demand expansion. The raise is forecasted especially in knowledge-intensive occupations (Lettmayr & Nehis, 2012) therefore the future is uncertain regarding availability of skilled workers especially in knowledge-intensive occupations while human capital reserves are predicted within the group of mature workers aged 65 and over (Pillay, Kelly & Tones, 2010; Lettmayr & Nehis, 2012).

2. Strategies supporting professional development of mature knowledge workers

Mature knowledge workers should have been regarded not as short-term costs but rather long-term investments particularly in respect of training (Brooke, 1995) since they are greatly interested for training, readily embrace organizational changes are more focused at work, more reliable and loyal to the employer (Smith, Smith & Smith, 2010). Updating mature workers' skills is found to be more cost-effective than hiring a non-experienced worker (Ennis-Cole & Allen, 1998). Companies are advised to invest in training mature employees since their commitment to learning is stronger and try to contribute to organisation's mission. Mature knowledge workers' continuous education and training is being proved to be beneficial since the organisations report increased motivation, retention and reduced absenteeism (Newton, et al., 2005).

2.1. The need for professional development

Aging of the workforce is an issue for the organizations therefore for their best interest understanding of mature employees' career goals and other factors of work engagement are needed for designing strategies to retain mature employees (Tones, Pillay, & Kelly, 2011). There is no reason to believe that elderly individuals are incapable learners although in 19th and 20th century, gerontology literature reported cognitive decline with ageing whereas recent studies contradict those conclusions. Many researchers have proved that significant declines in cognition often manifest when people are in their 60s to 70s (Schaie, 1996; Craik & Salthouse, 2000; Staudinger & Lindenberger, 2003; Smith Smith & Smith, 2010). Mature individuals may suffer a slight decline in some areas of cognitive abilities but only those of aged 80 or more. However, they develop compensatory mechanisms for any sort of decline

The importance of learning constantly increases in contemporary working environment with continuous changes in working life exacerbated by technological development and an increasingly global economy and will continue to impact general competence requirements (Billet, 2010). Human resource departments provide learning opportunities that help employees to be ready for competition within a global economy since employees who acquire a wider range of skills become the organizations' valuable assets. The positive consequence of learning is that workers can much quicker adapt to internal and external business demands and at the same time preserve productivity under any conditions (Abrams, & Berge, 2010). Contemporary assumptions are built on cognitive abilities of employees (Ballot, Fakhfakh & Taymaz, 2001) that are intangible assets appearing in a form of training stock which was proved to be a significant input of production function. In emerging knowledge society learning as well as other features of work considerably altered. Individual level of human capital in particular has become the key quality of labour upon which future economic growth is built upon (Pyöriä, 2005). High-skilled occupations that deal with knowledge or people are growing while routine-intensive and less abstract jobs are eroding that require development of transferable skills (Bosch & ter Weel, 2013). Knowledge work requires extensive formal education and constant on-job training (Pyöriä, 2005). Therefore in contemporary work setting employer usually pays for transferable skills regardless the assumptions of theory of training

because of the growing importance of knowledge as an economic resource that reflects technological development (Pyöriä, 2005; Loretto & White, 2006).

Through professional development programs, human capital is upgraded, skill obsolescence avoided, performance improved and consequently employability increased that means that mature individuals less likely to be pushed outside the labour market. Nevertheless, non-voluntary separation from work means violation of human rights and further exclusion from labour means loss of financial independence and dignity (Bangali, 2004).

2.2. Professional development and mature knowledge workers' retention

By the means of training, employability is strengthened and as such it is considered a very powerful human resource strategy (Picchio & van Ours, 2013). It has been proven that among other conditions, continuous learning help improve attachment of mature knowledge workers to labour market (Bangali, 2004; Fourage & Schils, 2008; Bohlinger & van Loo, 2010). Individual employability comprises of the abilities of individual under the consideration of his/her labour market ability to manage his/her own career, continuous learning. It emerges in forms of initial employment, employment maintenance and ability to get new employment when required (Bangali, 2004). From the employees' prospective employability is defined as an appropriate set of skills whereas from employers' perspective employability is understood to be a set of skills offered by a job applicant that can add value to business (Patrickson & Ranzijn, 2003). Thus, lifelong learning of mature knowledge workers must address today's issues and challenges with appropriate new learning tools that are flexible, adaptable, and easily updated (Maurer, 2001). Lifelong learning enhances individual development and employability which pertains obtaining and remaining in paid employment (Žnidaršič, 2008).

Almost half of knowledge resides in the brains of the employees organizations are severely affected by the knowledge loss through the process of retiring therefore another thing that has to be considered is knowledge transfer through which knowledge is retained within the workplace. Knowledge is mostly transferred through mentoring while guidance is offered but there are also other ways like usage of document repositories, classroom learning, through leaning communities where knowledge is shared between older and younger colleagues, there are also multi-media courses, audio/video interviewing. Reverse mentoring contains two-way learning where younger workers assist mature workers regarding specific fields and vice versa but it requires attitude of openness (Stevens, 2010).

In growth-oriented organizations optimal knowledge management can be gained within multi-generational work teams where knowledge can be shared and finally successfully deployed where learning, innovations and continuous training are viewed as strategic measures (Stevens, 2010).

2.3. Holistic approach towards professional development strategies

Knowledge and competences are developed through the process of education and training and is transferred and strengthened through social interactions. When organizing learning activities, characteristics of adult learners have to be taken into account. The dimensions that needs to be examined to gain optimal implementation of different learning measures are those that ensure enhancement of learning motivation, several management supporting measures, learning styles implementation that match learners personal learning preferences, choosing appropriate learning strategies and learning forms. Lowe (2002) emphasises the necessity to firmly establish organizational learning where new approaches regarding mature knowledge workers' professional development, work organization, job design, organizational culture and business strategy needed to be redefined. Rapid transformation of knowledge and technology bring about the need to leverage skills through continuous active training within and outside working environment.

Table 1. Strategies supporting professional development of mature knowledge workers

Strategy	Specific suggestion	Reference(s)
Management support	Non-discriminatory approach	Burke & Ng, 2006
	Fostering the developmental paths	Maurer & Lippstreu, 2008
	Recognition	Knafer & Ackerman, 2004; Griffin, 2011
	Organizational culture where learning is highly valued	Lowe, 2002; Rocco, Stein & Lee, 2003; Bohlinger & van Loo, 2010
Learning motivation enhancement	Offering career development from training	Bertolino, Truxillo & Fraccaroli, 2011
	Creation of climate of mutual respect and appreciation	Issac, Wilfred & Pitt, 2001
	Linking acquired knowledge with previous experience	Cole, 2012; Smith, Smith & Smith, 2010
Learning styles implementation	Shaping an individual approach to learning	Kolb & Kolb, 2005; Graff, 2012
Pedagogic approaches	Systematic approach to training that pertain identifying and analyzing the training need, specifying training objectives, establishment of training design, choosing training program	Brooke, 1995; Bertolino, Truxillo & Fraccaroli, 2011
	Choosing appropriate learning form	Bohlinger & van Loo, 2010
	Curriculum on practice-based experience with educational intervention	Bertolino, Truxillo & Fraccaroli, 2011

Based on expectancy theory, training motivation is conceptualized in terms of tendency to engage in training and development activities. Intrinsic motivation can be enhanced through offer of career development from training in the coming years (Bertolino, Truxillo & Fraccaroli, 2011). Additionally emotions of intrinsic motivation can be enhanced through in learning and training opportunities within a climate of mutual respect and appreciation when employees met or even exceed employers' expectations (Issac, Wilfred & Pitt, 2001). Adults are independent individuals who mostly like to be involved in learning, most of them being internally motivated learners with wealth of experience, therefore links between acquired knowledge with previous experience are highly recommended. They mainly prefer goal-oriented training that has immediate effect at their workplaces (Cole, 2012).

Management support is offered through several important dimensions that contribute to optimization of human capital accumulation. It starts from the very basic requirement of non-discriminatory approach towards workers regardless of age with the access to training for all and further with the creation of positive learning climate (McCracken, Brown & O' Kane, 2012). Providing equal opportunities is recommended to create win-win situation since older employees remain motivated to contribute in terms of high quality performance (Kluge and Krings, 2008). Employees need credible information about the development paths that management fosters through learning (Maurer & Lippstreu, 2008) and through recognition and learning evaluation (Griffin, 2011). To firmly establish organizational learning, approaches regarding human resource development, work organization, job design, organizational culture and business strategy need to be redefined. Human resource managers are advised to shape organizational culture that appreciates mature individuals as valuable workers (Rocco, Stein & Lee, 2003). In knowledge economy all employees are able to contribute and develop their skills therefore policy

priorities for promotion of continuous learning demand organizational culture that highly values learning (Lowe, 2002).

Learning styles implementation that match learners personal learning preferences are founded in experiential learning theory (Kolb & Kolb, 2005; Graff, 2012) since most adults use a blend of four learning styles which shape an individual approach to learning (activists, reflectors, theorists and pragmatists). By knowing the learning style of an individual learner and adopting it accordingly, newly acquired knowledge can be maximized. Technology based approaches offer opportunities to accommodate individual learning style preferences, so individuals can learn by reading materials, by watching videos or by hearing lectures on-line (Rahim & Finch, 2011). When learning at work, experiences develop during the process and provide a foundation for reflection and comparison to previously encountered knowledge (Gray, 2004) therefore it is considered to be an important way of competence development related to job itself and is a bridge between formal education and practical competences (Gray, 2004; Fourage & Schils, 2008). Although work experience is found to be of great importance, it is still not sufficient therefore to achieve optimal results, education and experience need to be linked (Paloniemi, 2006).

Decision about learning strategies is rather complex. Different subjects and knowledge domains response to different learning aims and therefore it would appear likely that learners have preferences for different pedagogic approaches in particular learning contexts (Ong, Lai & Wang, 2004). Deciding about learning strategy has to be conducted systematically through integration of formal and informal workplace learning where learner is viewed as knowledge-seeker. Adequate organizational practices in treatment of human resources are being emphasized regarding establishment of systematic approach to training that pertain identifying and analyzing the training need, specifying training objectives, establishment of training design, choosing training program and finally evaluating training achievements that follows with rewarding procedures (Brooke, 1995). To accommodate the diverse training needs different curriculum models are proposed through which learning that suits the specific needs of individuals and meet learning target are offered. The wholly practice-based model is designed to accommodate different options of on-job-training where knowledge is developed in self directed learning through access to more experienced employees. On the other hand, education-based learning based on specially required programs that offer development of specific personal and professional competences. However, the mix of two in terms of curriculum on practice-based experience with educational intervention is being proposed (Bertolino, Truxillo & Fraccaroli, 2011). Several studies have found increasing variability on learning paths. While aging individuals develop different skills at different points in life, and simultaneously become more and more different. Therefore a life-course perspective on human resource development should be differentiated across domains of expertise, individual biographies and age groups (Lahn, 2002). Mature individuals cannot be all limped into the same category but rather be paid attention to regarding facilitation of their special needs (Ennis-Cole & Allen, 1998). Differences in learning preferences between individuals become greater with ageing and are based on personality differences, class differences and educational differences therefore mature learners have to receive even greater consideration in the delivery of training programs (Maurer, 2001).

When preparing training plan, three main forms of learning are differentiated as formal learning that takes place in education institutions and when completed individual receives recognized diplomas and qualifications. Than non-formal learning appears as on-job training and other forms within the human resource development measures within organizations that does not lead to receiving recognized certificates. And finally informal learning that occurs in everyday life and is not recognized and sometimes even not intentional but nevertheless contributes to upgrading of knowledge and skills (Bohlinger & van Loo, 2010).

3. Conclusion

The workforce ageing raises question about competitiveness of companies globally due to labour and skill shortages, especially regarding knowledge-intensive occupations. Because of demographic impacts on social life

as well as the problem that it creates impacting state budgets, mature individuals are being treated in a new fashion as valuable human resource and labour market reserves and as such organizations' policies need to facilitate their participation in lifelong learning to foster their employability (Bohlinger & van Loo, 2010). Many mature individuals will now have to extend their working lives therefore there is a need to maintain their employability longer than previous generations of workers. In emerging knowledge societies companies are increasingly reliant upon knowledge workers to secure their economic and social development. When implementing training programs, human resource departments enhance developments of workforce in terms of flexibility and growth and at the same time prepare companies for emergencies, recessions, and the increased competition.

The conclusion goes to necessity of adoption of new requirements regarding learning and working life, building inclusive and learning supportive workplaces. Human resource departments that offer training opportunities are those that enable workers to become capable, productive, and lifelong learning workers. Knowledge workers need strong support regarding lifelong learning due to rapidly changing technologies and global environment. The key issue regarding whether a worker is capable of prolonging working life is the maintenance of individual workability which is the prerequisite in pursuance of prolonging working life. Continuous training of mature workers is one of the most important agents of prolonging working life because up-to date knowledge and skills are, above adequate health status, key factor of workability. Adequate levels of investment in lifelong learning results in mental fitness. Maintenance of workability of an individual worker means of taking health preservation actions and constant engagement in lifelong learning.

Knowledge workers' workability model offers holistic approach to human capital development as a transition to successful combating challenges of current difficult situations of economic decline and where success no longer lies in improving efficiency but rather on human capabilities. Success can be attained when learning is implemented according to specific requirements regarding management support, establishing appropriate learning strategies, deciding to conduct the form of learning according to learning content and above all because knowledge workers are strongly motivated to participate in learning.

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4th International Conference on New Horizons in Education

Satisfaction with Education

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Abstract

Many studies confirm a collection of students satisfaction measurement. It represents the first level of Kirkpatrick model. This level is the basic one and used in a lot of companies, but some gaps and problems are discussed. The aim of the article is to show problematic aspects of student satisfaction measurement at Institute of Chemical Technology Prague. These aspects should be taken into account if the measurement is used as a source for changes or teachers evaluation. The article shows that received data are not representative and offers other methods to evaluation of education.

Keywords: Students Satisfaction; Quality of Education; Student Feedback; Kirkpatrick Model

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1. Introduction

Satisfaction with education is the first level in the Kirkpatrick model of education evaluation. Grider, Capps and Toombs (In Bates, 2004) found that most of organizations are historically focused only for collecting reactions measures. Other levels are learning, behavior, and results. Philips (1996) added the fifth level – return of investment (ROI). Also other authors tried to modify and add the original Kirkpatrick model (e.g. Cannon-Bowers, 1995; Cascio, 1999). The model has also received a certain amount of criticism (e.g. Alliger & Janak, 1989; Tannenbaum & Woods, 1992; Sitzmann et al., 2008; Giangreco, Carugati & Sebastiano, 2010). Against these polemics it is used in a lot of business and non-commercial institutions include universities using particularly students satisfaction measurement.

Satisfaction with teaching seems to be very important factor in university evaluation, but it is hard to satisfy all stakeholders (students, sponsors, employers, society, etc). Universities as a nonprofit organizations, can not be focused for obtain profit. Choudhury (2012) offers more questions to define university goals and priorities. Only after the finding of stakeholders and goals, it is possible to define quality of higher education sector. Parasuraman et al. (1988) defined five dimensional model of service quality consist of tangibles, reliability, responsiveness, assurance and empathy, which is possible to use for higher education evaluation. Berk (2006) thinks that no objective method for measuring teaching performance exists.

This article is focused to show failings and problems of satisfaction measurement based on the analysis of students' evaluation at Institute of Chemical Technology, Prague (ICT). It discusses other possible tools to quality evaluation of teaching.

The paper begins with literature review regarding to students evaluation and satisfaction. Next, the design of study is described and findings are discussed. At the end article offers other possible tools to evaluate teaching and possible ways for future research.

2. Literature review

Schools and universities are traditionally focused on evaluation of students. In accordance with Kirkpatrick model there is the second level - learning. Because they usually prepare wide range graduates, they examine knowledge without considering their job related application. But universities use the first level of Kirkpatrick model, too. They often consider students as customers of higher education (Cremonini, Westerheijden & Enders, 2008; Sinclaire, 2011; Taylor et al., 2008), and therefore collect students feedback. Loveland (In Haan, 2010) claimed there have been during the past seventy years over 2 000 studies in student evaluation teaching. Nair, Bennett and Mertova (2010) found that many universities around the world collect student feedback, but they do not use it for institutional changes.

There are many definitions of student satisfaction (see O'Leary & Quilan, 2007; Moore, 2009 and there is clear that students satisfaction is influenced by many factors (Griggs, Blackburn & Smith, 2012). Choudhury (2012) assumes four dimensions (teaching, facilities, attitude and convenience), Maceli, Fogliasso and Baack (2011) confirmed gender influence, Marsh (2000) discussed the impact of the grade which students expect to receive. Maceli, Fogliasso and Baack (2011) claim that students expect teachers to possess superior communication skills and the ability to artfully engage students in the learning process, Abduh, Maritz and Rushworth (2012) were focused on satisfaction in terms of learning and teaching resources, teaching methods and achievement of expected outcomes.

Other researchers have analyzed satisfaction in comparison traditional, textbook based and non-traditional internet based education (DeBerg & Chapman, 2012; Peacock, Watts & Foreman, 2013; Sinclaire, 2011) or surveyed factors for choice of university (Sojkin, Bartowiak & Skuza, 2012).

Improved student involvement and satisfaction can lead to improved learning. Student perceptions are important parameters of the social and psychological aspects of the learning environments (Fraser, 1998; Huam, Amram & Lee, 2011; Ramsden, 2005).

3. Research design

Evaluation of student satisfaction at ICT Prague is realized since 2004. Previously it was pen-paper modification, since 2006/2007 it is computerized. Students can from 10th week of semester (semester consist of 14 weeks) evaluate each subject (lecturer) they enrolled. The evaluation consists of 8 items of satisfaction evaluated on five-point Likert scale (1 is the best, 5 is the worst).

Data were collected under winter semester 2012/2013. There were evaluated 247 lectures, 158 exercises, 7 different seminars and 18 laboratories, it is 430 items. Because a lot of subjects consist of lecture and exercise, there were 330 evaluated subjects. Some subjects are taught in more teaching groups (e.g. Mathematics I in 7 per lectures and 20 per exercises; Chemical Calculations in 30) and some students forgot to fulfill teacher's name therefore in winter semester 2013/2013 were collected 1 114 items. The example is in Table 1. Subject Enterprise Economics consist of lecture (lecturer M.B.) and exercise (for groups because of number of students – lecturers J.D., J.F, D.S., J.S.). Because some students forgot fulfill the name, this subject is divided into 7 items.

Table 1. Evaluation of Enterprise Economics

	Quantity	Item 1	Item 2	Item 3	Item 4	Item 5	Item 6	Item 7	Item 8
Enterprise Economics [M.B, lecture]	21/135	1,57:0,68	1,24:0,54	2,00:0,89	0,00:0,00	2,86:0,96	2,00:0,63	0,00:0,00	2,24:0,83
Enterprise Economics [J.D., exercise]	11/135	1,45:0,93	1,00:0,00	0,00:0,00	0,00:0,00	0,00:0,00	1,64:0,81	0,00:0,00	0,00:0,00
Enterprise Economics [J.F., exercise]	2/135	1,00:0,00	1,00:0,00	0,00:0,00	0,00:0,00	0,00:0,00	1,50:0,71	0,00:0,00	0,00:0,00
Enterprise Economics [D.S., exercise]	4/135	1,25:0,50	1,25:0,50	0,00:0,00	0,00:0,00	0,00:0,00	1,50:0,58	0,00:0,00	0,00:0,00
Enterprise Economics [J.S., exercise]	3/135	1,67:0,58	1,67:0,58	0,00:0,00	0,00:0,00	0,00:0,00	1,67:0,58	0,00:0,00	0,00:0,00
Enterprise Economics [?, exercise]	6/135	1,33:0,52	1,33:0,52	0,00:0,00	0,00:0,00	0,00:0,00	1,67:0,52	0,00:0,00	0,00:0,00
Enterprise Economics [?, lecture]	8/135	1,75:0,46	1,63:1,06	2,13:0,83	0,00:0,00	2,88:1,13	2,13:0,64	0,00:0,00	1,88:0,83

4. Findings

The main disadvantages of current evaluation of students satisfaction is the minimum information value or representativeness. In the evaluation are only total numbers of respondents (students). It is enough if there is only one teacher per group. It does not problem if one teacher leads more groups (e.g. exercises). Instead two evaluations of e.g. 2 groups (18 and 23 members) he receives one evaluation of one group (41 members).

Example presented in Table 1 shows two problems. The first is very low number of feedback and the second is impossibility to find the size of taught groups. 135 is total of enrolled students. These students have only one lecturer but they can choose one of four groups per exercises. The size of these groups is possible to find in other section of Informational system but students can change the group during the semester and evaluate all four teachers. Enterprise Economics is quite small subject, e.g. Mathematics had 1 450 and Chemical Calculations 1 295 enrolled students.

The problem with small number of respondents will be shown in example of Faculty of chemical Engineering, one of four Faculties at ICT Prague. In the winter semester 2012/2013 there was taught 141 subjects in this

Faculty in 350 groups. In this number are not included laboratories, seminars and semestral projects, because of changing too much lecturers here and impossibility to find how many teachers student should evaluate. Table 2 shows the numbers of enrolled students in all departments (signed by numbers 401-407) of the Faculty.

Table 2. Enrolled students at Faculty of Chemical Engineering

	401	402	403	404	405	406	407	total
Nr. of subjects:	30	22	20	16	16	12	25	141
Nr. of groups	56	67	50	55	35	23	64	350
Nr. of enrolled students								
-5	6	25	8	6	3	9	27	x
-10	15	12	11	9	12	1	10	x
-20	20	15	21	7	6	5	11	x
-50	13	11	8	15	9	5	10	x
-100	1	2	1	6	4	3	6	x
-150	1	1	-	5	1	-	-	x
-200	-	-	1	2	-	-	-	x
201+	-	1	-	5	-	-	-	x

Table 3 shows the numbers of received feedback in the semester.

Table 3. Nr. of feedbacks at Faculty of Chemical Engineering

	401	402	403	404	405	406	407
Nr. of students who provided feedback	Nr. of evaluated groups						
1	19	8	13	13	15	12	12
-5	26	26	12	10	11	12	5
-10	7	3	5	11	1	1	11
-20	-	1	2	3	1	1	4
-50	-	2	-	9	1	-	2
50+	-	-	-	-	-	-	-

If we compare these Tables we can see e.g. that at the department 402 was taught 15 groups (11+2+1+1) with more than 20 enrolled students but only in 2 cases evaluated the same group more than 20 students. It is obvious that majority of evaluation comes from 1 up to 5 respondents. Vice versa there was no evaluation of more than 50 members group although there were 6 groups at the Faculty with more than 200 enrolled students.

5. Conclusions and Recommendations

There are two problems in students satisfaction measurement at ICT Prague. The first one is impossibility to determine number of students who should provide feedback. This problem is possible to solve in modification of data collection system. The bigger problem is low returnability of feedbacks. The compulsory feedback is not suitable way. It tends to give average evaluation for all subjects and teachers, very often give feedback students they did not attend the lecture, too. Much better way has chosen the University Centre for Higher Education Quality (CHEQ) (Nair, Bennet & Mertova, 2010), where the rate of responses increases from 33.4 in 2005 to 51.9 in 2008. They use the results to prepare Strategic Policy for Quality Improvement in Teaching and Learning and students belief that staff will act on their feedback.

To use the satisfaction measurement as a source for changes, it is important to select good questions. Interest of subject is for example not good one, because of different natural interest of different subjects (e.g. Soft skills versus Accounting). Vice versa students are able to evaluate e.g. preparedness of teacher or student outcomes.

Indirect method to find student satisfaction is attendance, naturally only in case of voluntary attendance. It is influenced by a lot of factors – e.g. time, day in the week, year of study, another duties, etc. – but influence of teacher is important. Problem can be if there are used quizzes to increase performance (Botek, 2013), because than voluntary attendance is a bit changed to obligatory.

Another indirect method can be analyses of students performance/grades. It is possible particularly for subjects with high number of enrolled students with more lecturers if we can compare these lecturers. If students from some group are significantly better in final test, it is probably because their lecturer. It is important to use same tests and evaluate them in accordance with same way.

Future studies should be focused on comparing student satisfaction, attendance and performance to verify if these indirect methods are usable.

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Save animals - use yourself: teaching cardiovascular pathophysiology without lab animals.

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Abstract

Historically was education of physiology and pathophysiology associated with demonstration of organism's function or basic pathological process on lab animals. This was partly due to the fact that many functions were able to be recorded only invasively i.e. encroaching on investigated object's integrity. But educational trends have significantly changed in last two decades. All of the students, legislation and pressure of non-governmental organizations led to minimizing of using lab animals in lessons of many Faculties of Medicine and Faculties of Veterinary Medicine. Didactic films were used in first phase and animated multimedia presentations prevail recently. Teaching of biomedical subjects without using living organism is possible but students aren't acquiring any new skills by passive monitoring of virtual information. Students also don't have a chance to perceive organism's reaction in other than by sight or audition. This way of teaching lacks emotions that accompany every doctor-patient contact. It is not associated with its stress and tactile and odor perceptions are also missing.

Keywords: teaching pathophysiology; 3R concept; didactic experiment; cardiovascular physiology

1. Introduction

The Department of Physiology, Faculty of Veterinary Medicine provides education of physiology and pathophysiology both in Czech and in English language. We have prepared interactive multi-media manuals for practical works (Matalová et al. 2008, Matalová et al. 2010a, Matalová et al. 2010b, Doubek et al. 2012). After previous working experiences with laboratory animals and following period of virtual teaching which persists and has our support we have decided to 'go back to roots' and restore demonstration experiments. In accordance with 3R concept in experimental medicine we prefer non-invasive methods done on students, what reduce amount of used laboratory animals. Using humans as testing subjects in didactic experiment brings simultaneously valuable information about feelings and impressions which cannot be told by laboratory animals. Testing subjects also experience many examination methods and gain personal opinion whether some methods called as 'non-invasive' are truly non-invasive.

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The most non-invasive examination methods are from cardiovascular physiology, pulmonary physiology and pathophysiology and of course neurology. Neurology is classically demonstrated on people. Therefore we took the liberty of presenting a few protocols from cardiovascular physiology, pulmonary physiology and pathophysiology where we use volunteers of students instead of animals.

2. Influence of oxygen and carbon dioxide to controlling the breath cycle and the type of breathing

Oxygen and carbon dioxide are two main blood gases which fundamentally influence breathing rate, breathing depth and minute tidal volume. Change of concentration in inhaling air and thus in blood manifest itself in breathing parameters described above.

2.1. Tools

Two respiration monitor belts, oxygen sensor and carbon dioxide sensor + 4 channel digital data logger (Vernier) for scanning breathing curves, concentration of oxygen and carbon dioxide in inhaling air, respirator mask, breathing tube, breathing box, fingers pulse oximeter (Nonin) , wireless Blue Tooth ECG, digital tonometer.

2.2. Perform the tasks

Respiration monitor belts are placed on proband's chest (5-6 intercostal space) and abdominal (belly button) area. Pulse oximeter, ECG electrodes and pressure cuff are placed as usual. Proband lies comfortably on bed and breathes calmly approximately 1 minute. In zero time ECG recording starts as well as data logger recording, detecting SpO₂ value and blood pressure. Mucosa colour and colour of limb's skin without pressure cuff is inspected. Skin temperature is measured by non-contact thermometer and modified CRT is performed. The same set of parameters is recorded in second and third minute. Then respiration mask with breathing tube is put on proband's head (enlargement of dead space) and after one minute recording of all data is done. Next, breathing tube is connected to breathing box with minimum ventilation and reverse inhalation is performed which leads to **hypercapnia and hypoxia** (after 3 mins identical parameters are recorded). Then proband breathes for 3 minutes only with breathing tube and detached breathing box and parameters described above are measured in minute interval. In next step reverse inhalation is performed again, but with the box supplied with 100% oxygen in a volume of 3l/min. Situation induce clean **hypercapnia without hypoxia**. Finally, restitution of normal breathing without box is done. In last phase the box is supplied with **100% oxygen** in a volume of 10 l/min and 3 min period is recorded again.

During this experiment proband tells its subjective impressions from individual experiment's phases and try to express its feelings and impressions regard to perception's polarity (pleasant – unpleasant – indifferent) and quality (itching, tingling, sensation of skin, pain...).

All gained data are written to protocols and converted to curves. Breathing curves are printed and attached to protocol. Next students' tasks are to assess changes, interpret them and compare recorded results with theory of breathing regulation they studied.

3. Demonstration of cardiopulmonary reflexes

Inhalation and exhalation are connected with oscillation tone of vagal nerve. This oscillation influence respiratory centre and cardiac activity. It leads to change of heart rate and blood pressure.

3.1. Tools

Fingers pulse oximeter (Nonin), wireless Blue Tooth ECG, digital tonometer.

3.2. Perform the tasks

Pulse oximeter, ECG electrodes and pressure cuff are placed on proband. Proband lies comfortably on the bed and breathes calmly approx. 1 min. In zero time ECG recording is started as well as detection of SpO₂ value and blood pressure. Then proband makes **deep inhale and holds breath** as long as possible. Each ½ minute (in exception of blood pressure measuring which is made once in a minute) measurements are performed. After that, proband breathes normally for three minutes followed by **maximal inhale again but tries to exhale against closed rima glottidis**. Recordings are performed each ½ min, for maximally 2 mins totally (in exception of blood pressure, which is measured once in a min). Then proband is allowed to breathe normally for three mins and every min recording of all described parameters is performed. Then proband makes **maximal exhale and remains in exhalation** as long as possible. Recordings are done each ½ min, for maximally 2 mins totally (in exception of blood pressure, which is measured once in a min). Proband is allowed to breathe normally again for three mins and every min recording of all described parameters is performed. Then wet towel tempered at fridge's temperature is put on proband's face and data are measured in usual cycle.

During this experiment proband tells its subjective impressions from individual experiment's phases and try to express its feelings and impressions regard to perception's polarity (pleasant – unpleasant – indifferent) and quality (heart beating, dizziness, narrowing of visual field, suffocation feeling and need to breathe).

All gained data are written to protocols and converted to curves. ECG curves are printed and attached to protocol. Next students' tasks are to assess changes, interpret them and compare recorded results with theory of breathing regulation they studied.

4. Demonstration of local disorders of blood and lymph circulation

Local disorders of blood circulation and lymph are base of many external disease manifestations and are part of basic pathological process as inflammation. This includes arterial and venous hyperaemia, ischemia and oedema. Embolism and thrombosis cannot be demonstrated without proband damaging.

4.1. Tools

2x fingers pulse oximeter (Nonin), mercury tonometer, stethoscope, non-contact thermometer, thread, timer, hand-held dynamometer connected to data logger (Vernier).

4.2. Perform the tasks

Proband sits comfortably on a chair next to table and blood pressure is measured and pulse wave is evaluated on both limbs. Dominant limb is used in this experiment (right-hander right limb, left-hander left limb). Pulse oximeter is put on the limb and forearm circumference is measured using thread on the place which is marked by highlighter (standardization of measurement). Dermal "CRT" and skin temperature is measured on hand palmar side on metacarpal pad under the thumb and power of squeeze for 5 seconds is measured. Identical values are measured in contralateral limb. **Ischemia model** – tonometer cuff is inflated 30 mmHg higher than the proband's systolic blood pressure. Successful ischemia is expressed by pulse and oximeter signal disappearance on ischemic limb. Parameters described above are recorded in each minute for 10 mins. Proband tells its feeling of ischemic limb part i.e. distally from cuff. After cuff removal **post-ischemic arterial hyperaemia** is noticed and after 30 seconds of reperfusion all parameters are measured again. Then proband raise its hand and exsanguination at the place of previous post-ischemic hyperaemia and **myoparalytic hyperaemia** at the skin which was under the cuff can be seen.

Normal blood flow is restored for 10 mins and then modified capillary test of fragility as an ideal model of venous hyperemia is preformed: after measurement of all parameters cuff is inflated for 80 mmHg. This value guarantees arterial blood supply to the limb we see on measuring pulse oximeter and palpable pulse as well but prevents outflow of venous blood. Data described above are recorded in each minute for 10 mins.

During this experiment proband tells its subjective impressions from individual experiment's phases and try to express its feelings and impressions regard to perception's polarity (pleasant – unpleasant – indifferent) and quality (heart beating, dizziness, narrowing of visual field, suffocation feeling and need to breathe).

All gained data are written to protocols and converted to curves. Breathing curves are printed and attached to protocol. Next students' tasks are to assess changes, interpret them and compare recorded results with theory of disorders of blood circulation and lymph they studied.

5. Conclusion

Nowadays when is generally accepted teaching in multimedia visualization form, is needed in biomedical subjects to deepen contact of students with living organisms already in preclinical subjects. Advantage of modern era is wide availability of non-invasive diagnostic method which allows seeing many functioning parameters without proband alteration. Facts are in graphically acceptable (digital) form which is demonstrative, easily interpretable and with ability to be electronically archived.

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Scale of teachers' beliefs on the effect of the use of mobile devices on students

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Abstract

The aim of this study was to develop a scale to determine beliefs of teachers about students' mobile device usage. Development process is composed of literature review, writing down the items, obtaining expert views, applying scale forms (N=130) and validity and reliability studies. As a result of factor analysis which is carried out within validity study of scale, it was determined that the scale is composed of 2 dimensions; academic development and social development. The scale which included 28 items in pilot application was reduced to 16 items as a result of analyses. Reliability coefficient of the whole scale is (∞) .91, reliability coefficient of academic development is .85, reliability coefficient of social development was calculated as .81.

Keywords: mobile devices, teacher beliefs, academic development, social development

1. INTRODUCTION

As the mobile technologies become widespread, mobile devices which can execute many functions of the desktop computers have become indispensable for the new generation and students started to carry these technologies to the school environment. The usage of mobile devices eases the daily lives of the human life in many ways and makes them more effective in accessing information. Mobil device usage and human behaviors interact in the sense of social, emotional and personality characteristics (Butt, Phillips, 2008; Hong, Chiu, Huang, 2012; Turner, Love, Howel, 2008).

Durin (2009) defines today's children as I-Children due to their interactive, independent and interpersonal characteristics. Moreover, he also stated that this new generation is easily adapted and manipulated to every kind of new technology and screen-based design. Children who we are educating today and will educate in the future are digital native and also their education needs, skills and interests differ compared to us. When the wider picture is considered, we confront a student community who are fully equipped in digital sense and whose education needs changed and transformed. Then what is the belief of teachers who fulfill education requirement of this community about the way students are influenced from mobile device usage? This question is the starting point of this study. Both observations and beliefs which include emotions and thoughts of teachers about this issue would give information about influence level of students. Moreover positive results of mobile learning

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which is supported by researches (Çavuş, Uzunboylu, 2009; Hwang, Wu, Ke, 2011; Marcos, Hilera, Barchino, Jiménez, Martínez, Gutiérrez, Gutiérrez, Otón, 2010; Sandberg, Maris, Geus, 2011) would give idea about students' integration to mobile devices and their including mobile devices into learning-teaching processes.

It is not difficult to think that a variable which influences us socially would also influence academic development and learning in education and teaching environments. In fact, in a study in which the effect of mobile computing devices in K-8 classes on motivation and learning of students was analyzed (Swan, Hooft, Kratoski, 2005) teachers stated that in this way participation of students into learning activities have increased. According to the results of same study, students used these devices most commonly for note taking and journal writing. Apart from this, teachers draw attention to the fact that students who need special education benefit from mobile devices about writing skill. Therefore, it can be said that students who have different education requirements make use of mobile devices in various ways.

Therefore determining the usage purposes and levels of these devices by the students and examination of their effect to their academic and social features will be directive in regulation of student based and technology friendly learning environments. Determining the teacher opinions about the effect of mobile devices on educational and social features of students is important in terms of emphasizing the perceptions of teachers regarding the relation of technology and education. Teachers have the opportunity to closely monitor and evaluate the behaviors of students using the mobile devices in the education environment. The beliefs of teachers towards mobile devices in working environment, their thoughts regarding the result of mobile device usage of students, will be directive regarding usage of mobile devices with the aim of learning. Therefore it is important to present which way the mobile devices used by the students and the educational and social behavior changes they cause, are interpreted by the teachers. Consequently, the purpose of this study is to develop a scale to measure teachers beliefs regarding to usage of mobile devices of students.

2. METHOD

2.1. Participants

Study group of scale development process is composed of 132 teachers who work at different branches of government (2) and private elementary schools (3) in Istanbul in 2012-2013 academic year. 2 forms which were not answered appropriately were excluded as a result of study and the study was carried out with the answers of 130 (81 females, 49 males) teachers. Demographic information about study group was summarized in Table 1.

Table 1. Demographic information about study group

	Professional Experience					Total
	1-5 year	6-10 year	11-20 year	21-30 year	Over 31-40 year	
Woman	35	22	14	8	2	81
Man	16	12	15	9	1	49
Total	51	34	29	13	3	130

2.2. Scale Development Process

First of all a literature review was done in the process of scale development (Chen, Katz, 2009; Ching, Shuler, Lewis, Levine, 2009; Cheon, Lee, Croocs, Song, 2012; Druin, 2009; Hoadley, 2009; Sung, Mayer, 2012; Uzunboylu, Özdamli, 2011; Yang, 2012). In this review, basically possible effects of mobile devices in school environment and learning, their roles and effects in learning-teaching process, use of mobile device at schools were analyzed. Semi-structured interview was carried out with 2 teachers about use of mobile devices in school environment and their effects to students. In the interviews it was concluded that beliefs of teachers about mobile devices should be stated and scale composed of 28 items was formed accordingly. For the face validity and scope validity of scale, views of one education technologist and 2 experts from psychological counseling and guidance. According to these views, necessary regulations were made on items. The scale was applied on 132 teachers who serve at private and state elementary schools in different districts of Istanbul and data were analyzed with SPSS 16.0 statistics program.

Items of scale are in 5-grade likert type. Consensus about ideas of items were arranged in the levels of “Strongly Agree”, “Agree”, “Neutral”, “Disagree”, “Strongly Disagree”. These levels were scored as Strongly Agree=5, Agree=4, Neutral=3, Disagree=2, Strongly Disagree=1. Total score of scale was formed as the sum of answers over these scores. Greatness level of total score is interpreted as that teachers have positive belief about mobile device usage of students. Regarding the contrary, low scores can be interpreted as that the belief has negative trend. There are positive and negative items in the scale. During scoring of scale, items which include negative view was regarded as inverse items and coded inversely. For example answer of “Strongly Agree” given for a negative item is calculated as 1 point, “Strongly Disagree” answer is calculated as 5 points.

3. FINDINGS

3.1. Findings Concerning the Validity of the Scale

Exploratory factor analysis was carried out in order to determine structure validity on data obtained from 130 teachers. The method to be used varies according to the assumptions and aims of researcher in explanatory factor analysis. For this aim, Principal Components Analysis which helps to explain variables through “representation”, “summarization” and “addition” concept was used (Şencan, 2005).

Before analysis, Kaiser-Meyer-Olkin (KMO) coefficient and Barlett Test were used in order to determine whether data are suitable for factor analysis or not. KMO being higher than .60 means that data are suitable for factor analysis (Büyüköztürk, 2005). In this study KMO was found to be .85. This result shows that data are quite suitable for factor analysis.

Table 2. Results of KMO and Bartlett Tests

Kaiser-Meyer-Olkin Sampling Adequacy Measure	0,85
Bartlett's Test Results	
X ²	1711,953
Degree of Freedom	378
p	0,00

For the factor analysis of scale within the scope of construct validity, explanatory factor analysis was done by using Varimaks rotation and Principal Components Analysis. As a result of factor analysis, it was found that 16 items of scale have two sub-dimensions whose eigenvalue is bigger than 0,30. Eigenvalue graphics of the scale supports this finding. Total variance explained for the scale by these factors is 36,948%. This situation shows that the scale is composed of items which generally measure similar characteristics..

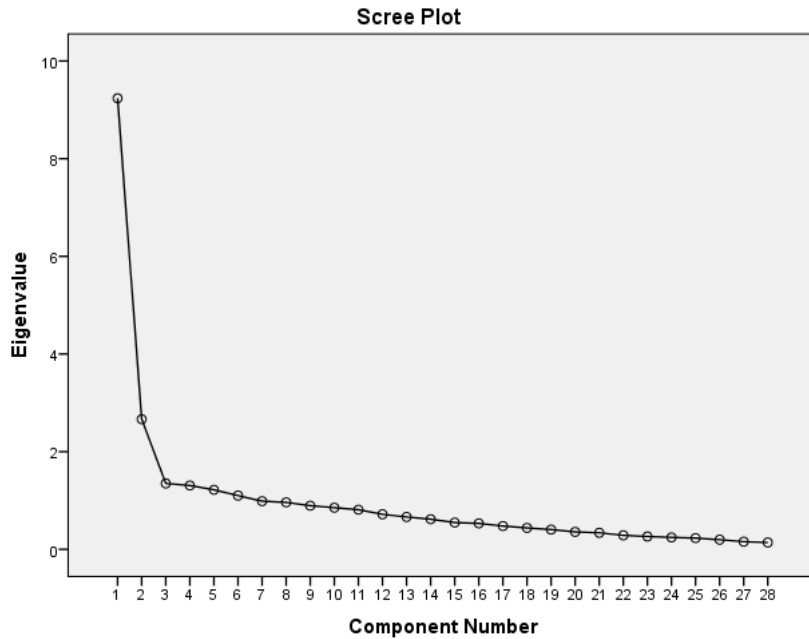


Figure 1. Eigenvalues Graphic

In Figure 5, it is seen that there is a sudden decrease after the first factor. This situation shows that scale may have a general factor. Following the other factor coming next, eigenvalue of factors included within graphic have similar values. Therefore these dimensions which are not explained theoretically were disregarded. While the items to be included within scale, items which have .40 and above factor load.

As a result of factor analysis, it is understood that items are grouped under two sub-dimensions which qualify beliefs of teachers about the effect of mobile devices on development of students. The first factor explains "academic development" (11 items) dimension, the second factor explains "social development" (5 items) dimension. As it is seen in Table 3, factor load of 18 items in the scale is higher than .40. Factor load of academic development dimension of scale varies between .75 and .40. Only factor load of 28th item of the scale concerning critical thinking was calculated as .045 however in spite of this it was not excluded from the scale as a result of common view of researchers. In the literature there also views that thinking skills and critical thinking can be supported with mobile learning (Çavuş, Uzunboylu, 2009; Naismith, 2004). Moreover it was thought that it would be beneficial to learn beliefs of teachers today where the education of thinking skills has gained importance. Considering in this sense, it was concluded that the item about critical thinking skill is an important item and should be included in the scale. Explained variance of this dimension of scale is 19,665%. Factor load of social development dimension of scale varies between .73 and .41. Explained variance of this dimension is 17,283%.

Table 3. Results of the Factor Analysis of the Scale

Item No	Item	Factor loadings after rotation	
		F 1	F 2
25	Frequency of using mobile device is the reason for inability of students in answering open-ended questions.	,75	
18	I observe that students who have the habit of using mobile devices at an earlier age compared to their peers are more impatient.	,70	
26	Mobile device usage creates motivation problems for learning among students.	,65	
13	Mobile device usage prevents self-confidence development.	,60	
17	I think that students who frequently use mobile device suffer from depression much more compared to those who do not use frequently.	,58	
20	Intensive use of mobile devices would result in memory problems among students.	,57	
19	Mobile devices influence studying habits of students negatively.	,54	
15	Mobile devices cause sleeping disorder among students.	,50	
14	I think intensive mobile device usage would cause attention deficit among students.	,49	
27	Mobile device usage decreased academic achievement of students.	,45	
28	Mobil device usage improves critical thinking skills of students.	,045	
6	I think mobile devices isolate students.		,73
10	I think mobile devices cause problems in communication of children with their families.		,69
1	I think mobile devices (i-pad, smartphone etc.) prevent socialization of students.		,64
12	Students have to use mobile devices in order to be "socially accepted".		,56
16	Contrary to common belief, social media contributes to socialization of children.		,41
Eigenvalue		9,24	2,68
Variaton (%)		19,665	17,283

*p< .05

3.2. Findings of Reliability of the Scale

Cronbach alpha (α) internal consistency level was calculated in order to determine reliability of the scale. Reliability (α) was found to be .89 for the first form of scale which is composed of 28 items. Cronbach alpha

internal consistency level (α) was found to be .91 for the final form of scale which is composed of 16 items. Internal consistency coefficient of academic development sub-dimension is .855, internal consistency coefficient of social development sub-dimension is .815. This result shows that the final scale has high reliability.

Another study which was carried out about reliability of scale is calculation of correlation coefficient between item score and scale score. At the end of this study, it was determined how each item effects scale reliability and items whose item-total correlation is below $r=.30$ were excluded from the scale. As it is seen in Table 4, correlation between scale items and total scale varies between .74 and .41. However, 28th item whose Item-Scale correlation is below .30 was excluded from the scale due to reasons mentioned within the scope of construct validity study.

Table 4. Teachers beliefs scale item total Correlations

Item No	Item-Scale r	Item No	Item-Scale r
25	,41	6	,69
18	,64	10	,74
26	,67	1	,61
13	,56	12	,59
17	,51	16	,47
20	,70		
19	,69		
15	,53		
14	,63		
27	,54		
28	,23		

* $p < .05$

In this study, minimum score to be obtained from general average of scale is (16x1) 16 and maximum score is (16x5) 80.

Table 5. Descriptive statistics of scale total

	N	Min.	Max.	\bar{X}	Ss
Total Scale	130	16	80	36,43	10,37
Factor 1:					
Academic development	130	11	55	25,35	7,21
Factor 2:					
Social development	130	5	25	11,07	3,98

When the scores obtained from the scale of teachers' beliefs is analysed, it was seen that the lowest score was (16) and the highest score was (80) and the average of scale is (\bar{X} =36,43). Although it is not the direct subject of scale development issue, when descriptive statistics obtained from scale was analysed, it was observed according to the average score of teachers (\bar{X} =36,43) that they believe mobile device usage of students have negative effect on their academic and social development. When the averages are analysed according to sub-dimensions of scale it is observed that teachers believe mobile device use have negative effect on students for both dimensions (academic development (\bar{X} =25,35), social development (\bar{X} =11,07)).

4. CONCLUSION

In this study, a scale was developed a scale to determine teachers' beliefs about mobile device usage of students. There are 16 items in the scale which was developed in 5-graded Likert type. Exploratory factor analysis was carried out within the scope of validity study of scale. There are 2 sub-dimensions of scale as a result of factor analysis. These are academic development and social development. Items whose factor load is below .40 were excluded from the scale and the scale which was composed of 28 items in the beginning was completed with 16 items finally. In the studies of factor analysis, conditions of items' factor load are above .30 and explained total variance being 40% at least is regarded sufficient in the sense of social sciences (Klein, 1994). It can be said that this scale is a valid and reliable instrument in measuring beliefs of teachers about students' mobile device usage.

Presenting thoughts and beliefs of teachers about the effect of mobile devices on students would shed light upon necessary regulations concerning education. Therefore results to be obtained from mentioned scale would contribute to determination of observed effects of mobile devices on students. Moreover, it would also contribute to teachers' arranging mobile activities which would enrich learning-teaching process. In fact; Liu, Wang, Liang, Chan, Ko, Yang (2003), stated that mobile learning devices can solve the dilemma in traditional and computer classrooms and allow students to participate in both physical and virtual learning activities. In fact, using skills, attitude and belief levels of teachers about mobile technologies should be determined in order to arrange mentioned activities in a way that would increase quality of education and it must be supported with necessary in-service education studies.

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School, class, and teacher features in science teaching *

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Abstract

The purpose of the current study is to determine the effects of physical and environmental conditions of schools, and the features of the class and teacher in the application process of Science and Technology curriculum of schools from different socioeconomic status (SES). The participants of the study composed of 2 schools with high SES, 2 with middle SES, and 2 with low SES, which were chosen via stratified sampling from Sakarya province central district elementary education schools that have low to middle, and high SES, and the directors and Science and Technology course instructors of that chosen schools. Qualitative data was acquired via the observations that were done in schools and classes, and from the interviews that were done with school directors and teachers. Acquired data was analyzed and following items were found: (1) In schools with high SES, having convenient opportunities provides advantages for the application of the science and technology curriculum. However, sometimes, courses are taught teacher centered because of crowded classes and time problems. (2) In schools with middle SES, science course is taught teacher centered because of the lack of laboratory, material insufficiency, and seating order in classes. (3) In schools with low SES, science course is taught teacher centered because of infrastructure insufficiency, high-class size, being not able to use laboratory, and material insufficiency.

Keywords: science education, school, class, teacher, input evaluation.

1. INTRODUCTION

In order to apply science and technology curriculum that aims to raise students with science and technology literacy as it is foreseen, it is necessary to transfer the curriculum to the classroom environment. The adequacy of environmental conditions that affect teaching- learning process gains importance in the curriculum in which the activities and experiments are dominant. If we think that the environmental factors that are considered as input affect the application process of the curriculum and the reaching level of students to the gains, the actualization level of the curriculum will be different in schools with different SES.

Moreover, it is important how teachers, responsible to apply the curriculum, evaluate the conditions of schools that they work.

"The application of the curriculum is successful if all conditions are improved especially the teacher factor. The development of curriculum depends on the development of expert, teacher, students, parent, course books, materials, and environmental factors" (Varış, 1988: 27). In order to apply curriculum realistically, it is necessary to consider the time and environment that is assigned to education, and the features of the education environment when the teaching- learning process is organized (Fidan, 1997). In an effective education environment, the learning level of the students and the reaching level of the school to its aims can change in relation to the

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resources the school have, the quality of the relationships in the school, the management understanding, and the in- class activity characteristics of the teacher (Celep, 2008). In addition, physical variables in the classroom that is in teacher's charge should be arranged in a way that is motivating, informative, and interesting for students (Aydm, 2010). Similarly, learning environment should be arranged in a way that it should be provided multi-directional interaction between students- teacher, and student- student (Sönmez, 2007: 168).

The classroom size, one of the physical variables in the class, is an important factor that has an influence on the teaching style of the instructor. In crowded classrooms, teachers prefer traditional way of teaching, while in classrooms with small class size, they prefer teaching style, which depends on the active participation of the students (Aydm, 2010; Başar, 2001). Classrooms with small class size make active learning easier. The attention of students increases so does the opportunity to attend classroom activities (Başar, 2001).

Besides, the seating order in the classroom is important because it affects the student- student, and students-teacher interaction, and the education either positively or negatively. For seating order, there are two approaches as teacher centered, and student centered. In teacher-centered approach, students sit down one after another, and the course materials are arranged according to teacher. In such a classroom environment, the way of interaction is between teacher and students. On the other hand, in student centered seating order, either individually or as a group, seating order is preferred depending on the topic, and in both styles students can see each other easily. In those classroom settings, the student- teacher interaction is supplied as well as student- student interaction. Furthermore, seating order, either individually or as a group, which is arranged according to the aims of the topic, increases student success (Aydm, 2010). Students should feel independent, and arrange their experiences according to their abilities in classroom environment, more precisely in learning environment. Therefore, the classroom environment should be organized in accordance with student expectation (Celep, 2008). In addition, seating order that affects the interaction between students negatively, or makes student participation difficult should be avoided (Akbaşlı, 2011). "Having fixed desks, and sitting down either in doubles or in threes prevent students from performing group activities. Thus, learning approach that depends on cooperation cannot be applied because of the physical conditions of schools" (Brooks and Brooks, 1993: 7).

According to Dönmez (2008), in most of the schools, classrooms are very crowded, desks are not suitable for developmental features of students, and students sit down in threes on those double desks, teachers do not have any other option except for traditional seating order for teaching, desks continue till teacher table, classrooms are not enough in calefaction, airing, and lightening. Therefore, all these negative features prevent qualified teaching. Moreover, physical obstacles like desks, tables, cabinets, distance, and student create psychological problems between students and the teacher, so that change the communication and the interaction (Barker, 1982, Aktaran: Başar, 2001: 25).

In science and technology curriculum, the teaching- learning process, learning environment, teaching strategies, and learning experiences are determined in accordance with the principles of the constructivist approach. In constructivist approach, the main purpose is to provide meaningful and permanent learning. In order to achieve this, education activities should be configured in a way that enables students' participation to learning experience, and it should be arranged in a way that improves students' higher order thinking abilities (Çakıcı, 2008). Similarly, Tyler (1950) indicated that learning is achieved with the active participation of the student, and student learns what s/he does instead of what teacher does (Aktaran: Bloom, 1979: 20). In classrooms in which the constructivist approach is applied, students are aware of the fact that they are responsible to configure information instead of being passive information receiver, and they are active participants of the learning process (Savery and Duffy, 1995). Furthermore, in science and technology course, in order to provide students' active participation, and to succeed learning style of experiencing- doing with activities and experiments, it should be provided group works in laboratories while arranging learning environment (MEB, 2006).

In order to achieve the main purpose of science and technology curriculum, science and technology literacy, it is necessary to reflect the foreseen factors to learning environments. Therefore, it is important to determine physical conditions that are considered as input, and to identify their impacts on the application process of the curriculum in terms of compensating shortcomings before the application. Hence, in the present study, the physical conditions of schools and classrooms, technological equipments, and classroom environments are

investigated as an input. Having enough equipments in science and technology classrooms, for science and technology education is fundamental to actualize the curriculum that depends on practice. Therefore, it is inevitable to experience application differences in teaching- learning process of the same curriculum, if we think that different schools with different levels of SES show differences in terms of physical conditions. It is important to determine the effects of those differences on the application process of the curriculum in order to provide schools with necessary infrastructure support.

2. METHOD

In the current study, the case study method was used as a qualitative research method. Six schools were chosen via stratified sampling from Sakarya province central district elementary schools. Two of the schools have high SES, two of them have middle SES, and two of them have low SES. Physical conditions of the schools that make up the sample were observed, and detailed information was taken by interviewing school directors. The science and technology course that was taught in either classes or laboratories was observed (average 50 class hours). The observations were noted by the experimenter in order to investigate the positive and negative effects of schools, class, and teacher in teaching science and technology course. Besides, the opinions of science and technology teachers were taken about the appropriateness of teaching- learning environment, and positive and negative aspects of the application of science and technology curriculum. Schools with high SES were coded as H1, and H2, schools with middle SES were coded as M1, and M2, and schools with low SES were coded as L1, and L2. Moreover, teachers that were interviewed were coded as T1, T2, ...T6. Data, which was acquired via observations and interviews was analyzed, and interpreted.

3. FINDINGS

The findings that were derived from school, and class observations and interviews with school directors and teachers in order to determine physical and environmental conditions of schools from different SES, and to determine the features of classes and teachers were presented below.

3.1. Features about H1 School, H1 class and T2 teacher:

H1 School, which is in the center of Sakarya province, began to education service in 1972 as a primary school. In 1998, the Ministry of Education did a change in National Education Fundamental Law, and the school began to give service as an elementary school. School building has 2460 m² closed area. The school is triplex and each storey is 820 m². Moreover, it has 24 classrooms, a conference hall up to 300 people, a science and technology laboratory, an information technology classroom with 38 computers, and 3 printers, a technical work workshop, a photocopy room, a canteen, department of preschool education, a room for the manager, a room for the assistant manager, and a room for teachers. As a school employee, there are a manager, 3 assistant managers, a counselor, 8 kindergarten teachers, 30 class masters, 26 in- field- teachers, and 2 servants. Besides, there are 249 students in kindergarten, 220 students in the first grade, 287 students in the second grade, 333 students in the third grade, 288

students in the fourth grade, 300 in the fifth grade, 267 in the sixth grade, 331 in the seventh grade, 316 in the eighth grade, and total of 2591 students. There are six sections for each class level. In the school, morning and afternoon education system is used. H1school is more crowded than other schools because it is preferred mostly by parents. Furthermore, with the help of its opportunities, the school can be characterized as well equipped. In terms of success in placement test, known as SBS in Turkey, in 2008, 210 students from H1 schools took the point more than 400 that brought a good reputation to the school. In addition, the sport is very important in H1school so that students have championship in the province in different kinds of sports branches.

T2 teacher who is one of the four science and technology instructors at H1 school, was graduated from science and technology teacher ship of faculty of education, and has been performing teaching for 10 years in general, and for 6 years in H1 school.

The class in which the observation took place is in the second storey in H1school. It is a crowded class with 52 students, 28 of them are female, and 24 of them are male. The movement area of students is restricted because the classroom has a 45 m² closed area. Moreover, there are three students in each desk. The teacher table, the blackboard, and front desks are interbedded, and very close to each other. The Figure 4-1 shows the classroom arrangement.

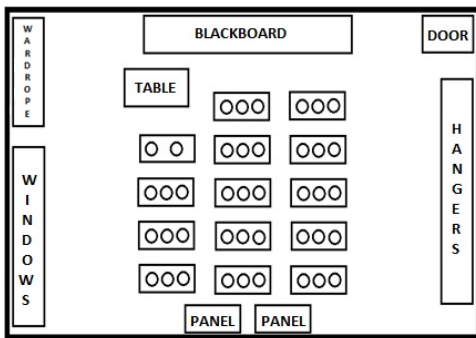


Figure 4-1. The observed classroom in H1 school

As it is seen in Figure 4-1, in classroom arrangement in H1school, students sit down one after another and with this arrangement the interaction between students cannot be provided. However, it was observed that T2 teacher wants students to put desk together in break times for group works. By combining two desks, six -people groups are created. Students in groups sit down opposing in combining desks. With the help of this arrangement, the interaction between students is supplied. The T2 teacher explains the work that each student performs so that the activity is done collectively. The products that students create, are represented in class pin boards. Besides, it was observed that T2 teacher takes the photos of products of students that are represented in class pin boards and hangs them on to the pin boards at each storey. In the class activities, the accessible materials are used so that the teacher wants students to bring those materials. For the activities that are done with laboratory materials, students go to the science and technology laboratory. The activities in laboratory are performed by the teacher due to crowdedness of the class and students follow those activities while standing. Furthermore, for unperformed activities, students watch them on the internet with the help of Vitamin program in information technology classroom. It was observed that T2 teacher has some problems while trying to perform activities and to manage students due to crowdedness of the class. Nevertheless, T2 teacher considers coping with those difficulties as a duty of the teacher and tries to minimize them. T2 teacher indicated his/ her opinion during the interview as

follows: *“Of course I experience some troubles but we are teachers and our duty is to minimize those troubles, everything depends on us. If there is a disadvantage, we should turn it to an advantage. I think we should not give up without applying it just because it has a disadvantage.”*

3.2. Features about H2 school, H2 class, and T5 teacher:

H2 school, located in the centre of Sakarya, was started to give education service in 2000-2001 academic year, it was established on the 1700 m² land, and it has 6040 m² closed area as a building. School building is triplex and each storey is 1800 m². There are 32 classrooms, a conference room up to 220 people, a science and technology laboratory, an information technology classroom with 24 computers and a printer, a visual arts workshop, two technology design workshops, a classroom for music, separate canteens for 1 to 5th grades and 6 to 8th grades, a library including approximately 6500 books, a cafeteria up to 300 people, a room for parent meetings, a room for the director, a room for the assistant director, and a room for teachers. All classrooms have projector, and continuous internet connectivity. Besides, there are a manager, 3 manager assistants, a counselor, 3 kindergarten teachers, 20 class masters, 20 in- field- teachers, a library employee, a secretary, and 5 servants in H2 school. In addition, H2 school covers 80 students in kindergarten, 172 students in the first grade, 176 students in the second grade, 175 in the 3rd grade, 173 in the 4th grade, 176 in the 5th grade, 180 in the 6th grade, 182 in the 7th grade, and 185 in the 8th grade, and total of 1499 students. Each grade has four sections. H2 school gives service full day (between 09:00 and 15:00), and it is well- equipped. Moreover, H2 school organizes social activities for both students and parents regularly. Furthermore, H2 school gives importance to the sports activities, and students have many championships in the province and in the region in different branches of sports. In addition to the sports, H2 school encourages students to attend chess tournaments, and students have championship in this area also. In terms of success in placement exam, SBS, as compared to other schools, there are more students in H2 school who earn a right to go to the science high schools.

T5 teacher who is one of the two science and technology teachers in H2 school, was graduated from science and technology teacher ship of the faculty of education and has been doing teacher ship for 14 years. Moreover, T5 has been doing teacher ship in H2 school for 4 years. T5 teacher thinks the conditions of the H2 school are very available for his/ her course. During the interview, s/he reported his/ her idea about preparing the appropriate learning environment like this: *“I have an advantage because there is a laboratory in the school, in addition to projector and computer. I can provide students with visuality by using them...”*

T5 teacher teaches his/ her lessons mostly at science and technology classroom that is described as science and technology laboratory. The classroom in which the observations took place is in the second floor of H2 school. It is a crowded class with 45 students. 19 of the students are female, and 26 of them are male. The movement area of students is not so restricted because the classroom has 52 m² closed area. Furthermore, students sit down side by side in a U shape. Figure 4-2 represents the arrangement of the classroom.

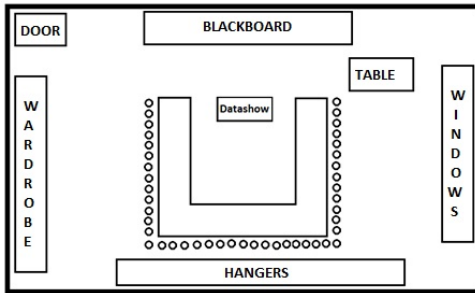


Figure 4-2. Science and technology classroom in H2 school in which the observations took place.

As it can be seen in Figure 4-2, students sit down in a U shape so that the interaction between them can be supplied easily. In the cabinets that are placed in the classroom, there are activity and experiment materials. T5 teacher makes 5- 6 student- groups for activities, and half of the students sit down inside of the U shape table, and other half sit down outside of the U shape table, which makes students sit down face to face. Thus, this increases the interaction between group members. T5 teacher wants students to bring some materials that do not exist in the laboratory for some activities. Moreover, it was observed that T5 teacher makes students do activities that do not take too much time as a group, and s/he does other activities that take too much time by himself/ herself. T5 teacher indicated this situation during the interviews as follows: *“I want students to bring materials for some activities, and we do them in classroom. However, this can be few in number. We can do short term activities in class because we experience a chaos due to the crowdedness of the class. I give some activities as assignment. For some activities, I do them and students follow me.”* T5 teacher uses the computer and the projector in classroom frequently, and also s/he makes students watch the topics on the internet with the help of Vitamin program. Besides, T5 teacher takes students to their usual classroom in order to solve some questions about the topics. In this class, the desks are arranged one after another.

3.3. Features about M1 school, M1 classroom, and T3 teacher:

In 1969, M1 school began to give education service with 5 classrooms. In 2005, it was re-built, and in 2006-2007 academic year it started to give service again with three storeys and 16 classrooms. M1 school is in county town in Sakarya, it was built on 4406 m² land, and it has 2148 m²-closed area as a building. M1 school is triplex and each storey has 716 m²-closed area, and the school garden has 3690 m² area. In addition to 16 classrooms, there are a science and technology laboratory, an information technology classroom with 26 computers and a printer, a projection room, a canteen, a guidance service room, an archive room, a bookshelf, the manager room, the manager assistant room, and a room for teachers. Moreover, for disabled students, there is an elevator, and a toilet. Besides, the M1 school gives education service with a manager, 2 manager assistants, 2 kindergarten teachers, 10 class masters, 5 in- field- teachers, and a servant. There are 31 students in kindergarten, 118 in the first grade, 84 in the second grade, 76 in the third grade, 83 in the fourth grade, 76 in the fifth grade, 64 in the sixth grade, 48 in the seventh grade, and 63 in the eighth grade, total of 643 students. There are two sections for each grade in M1 school. The fixed classroom setting is used in the school that is each course has separate classroom. Moreover, 13 classrooms out of 16, have projector and internet connection. M1 school gives

education service full day (from 09:00 to 15:00). The school organizes folk dancing activities, and chess training. In chess, school earned a degree in top three.

T3 teacher is the only science and technology teacher in M1 school. S/he was graduated from science and technology teacher ship of the faculty of education. S/he has been doing teacher ship for 5 years in M1 school, and for 6 years in general.

The classroom in which observation took place in M1 school, is called as science and technology classroom. The classroom is in the second storey of the school, and it has approximately 38 m² closed area. There are 32 students in the class, 17 of them are female, and 15 of them are male. The movement area of students in the class is not restricted. Students sit down side by side in a U shape. Figure 4-3 shows the arrangement of the classroom.

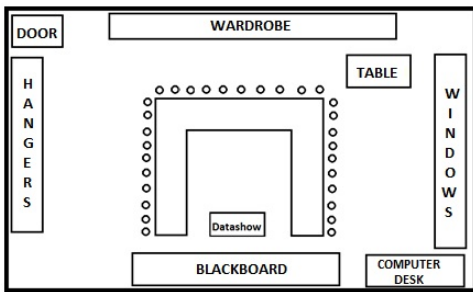


Figure 4-3. The observed science and technology classroom in M1 school

As Figure 4-3 demonstrates, seating order in M1 class is as a U shape so that students can see each other easily. Although the classroom is a science and technology class, the materials in the cabinets are not enough in number and in diversity. T3 teacher wants students to bring materials, and s/he brings also. During the observation, T3 teacher did some activities by himself/ herself. S/he asked some questions to students, and encouraged them to raise their opinions while s/he was doing activities. Generally, s/he gave activities, not done in class, as assignments to students. Moreover, it was observed that T3 teacher made students watch unperformed activities on the internet with the help of Vitamin program. Furthermore, relying on observations, T3 teacher provided each student to take part in teaching- learning process because the class is not so crowded.

3.4. Features about M2 school, M2 classroom, and T6 teacher:

M2 school started to give education service in 1973, and it continued to give that service with its new block that was established in 1996 with 3000 m² closed area, and 24 classrooms. The school was established on 6600 m² land, and it has 3900 m² closed area. Moreover, there are 30 classrooms, 2 kindergarten classrooms, a science and technology laboratory, a technology design work shop, a visual arts work shop, an information technology classroom, a manager room, 2 manager assistant rooms, a counselor room, a room for teachers, a library, a sports hall, a parent meeting room, a canteen, an archive, and a servant room in M2 school. Moreover, it gives service with a manager, 2 manager assistants, a counselor, 2 kindergarten teachers, 15 class masters, 18 in-

field- teachers, and 3 servants. Furthermore, there are 32 students in kindergarten, 73 students in the first grade, 80 in the second grade, 82 in the third grade, 67 in the fourth grade, 72 in the fifth grade, 63 in the sixth grade, 66 in the seventh grade, 102 in the eighth grade, and total of 637 students. There are 2 sections in the kindergarten, and three sections for each grade. There are a projector and internet connection in every classroom. The school gives education service full day (from 09:00 to 15:00).

T6 teacher is the only science and technology teacher of the M2 school. T6 teacher was graduated from science and technology teacher ship of the faculty of education and T6 has been working for 7 years in M2 school, total of 8 years in teacher ship.

The classroom that observation took place is called science and technology class in the school. It has approximately 32 m²-closed area. There are 26 students, 14 of them are male, and 12 of them are female. The movement area of students is not restricted due to small class size. Students sit down in doubles on desks in the class. In seating arrangement, desks are one after another that makes interaction between students weaker. Figure 4-4 shows classroom arrangement.

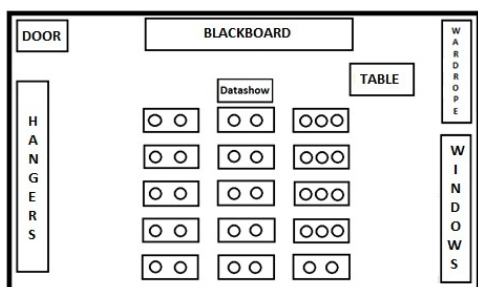


Figure 4-4. The observed science and technology classroom in M2 school

M2 classroom, science and technology class, has a normal classroom arrangement on basement as seen in Figure 4-4. In the cabinet, there are some little glass tubes, and beakers as materials. During the interview T6 teacher reported this situation as follows: "I cannot do most of the activities because we do not have a laboratory and necessary materials. We try to do something with daily materials in our houses, but it is not applied as much as it is needed." During the observation, T6 teacher did an activity with students in the class, and wanted students to bring materials for that. It was observed that T6 teacher made students watch unperformed activities on the internet with the help of Vitamin program by using the projector and the computer in the classroom. T6 teacher teaches lessons by asking questions to students frequently, and wanting them to report the situations that they confront in daily life. By doing this, T6 teacher encourages students to participate. Moreover, T6 knows every student's names in the class due to small class size, and encourages everyone to share their opinions.

3.5. Features about L1 school, L1 classroom, and T1 teacher:

The L1 school that is in Sakarya central district was established in 1957. The courses started to be taught in prefabs due to the damage in school building in 1999 Adapazarı earthquake. Later, additional building was established next to the prefab. The additional building is duplex and has 1097 m² closed area. The prefab is

single-layered and has 816 m²-closed area. The school has 1500 m² garden. The courses are taught in prefab and in additional building. The additional building has 10 classrooms, a science and technology laboratory, a technology design workshop, an information technology classroom with 17 computers and a printer, a library, a manager assistant room. The prefab has 15 classrooms, 2 kindergarten classrooms, a manager room, a manager assistant room, a counselor room, and a room for teachers. The school canteen is on the garden. There are a manager, 2 manager assistants, 2 kindergarten teachers, 17 class masters, 17 in-field teachers, and 2 servants in L1 school. Moreover, there are 40 students in the kindergarten, 93 in the first grade, 97 in the second grade, 90 in the third grade, 119 in the fourth grade, 107 in the fifth grade, 102 in the sixth grade, 74 in the seventh grade, 88 in the eighth grade, total of 814 students. The morning and afternoon education system is used in L1 school.

The T1 teacher is one of the two science and technology teachers in L1 school. T1 teacher was graduated from science and technology teacher ship of the faculty of education, and has been doing teacher ship for 12 years. T1 teacher has been working in L1 school for a year.

The observed classroom in L1 school is in prefab, and it has approximately 30 m²-closed area. The class size is 32, 17 male students and 15 female students. Students sit down in doubles in their desks.

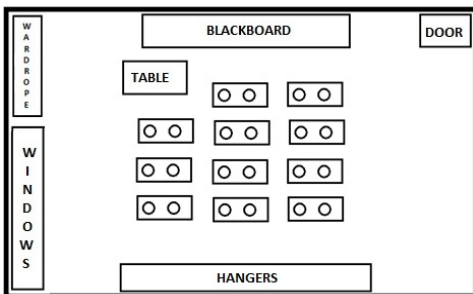


Figure 4-5. The observed classroom in L1 school

As seen in Figure 4-5, student desks are arranged one after another. There is too much noise from the outside during the lessons because the classroom is prefab, the windows are large, and they see the school garden directly. T1 teacher indicated his/ her opinion about this condition during the interview as a disadvantage of the application process of the curriculum. "... *there is too much noise from outside because the school is prefab...*" It was observed that during the observation T1 teacher did not do any activity. Teacher teaches lessons by making one volunteer student read the topic from the course book, and making other students follow it from their books. Sometimes, T1 asks questions to students and chooses only 1- 2 students who raise hands. In some classes, T1 showed some posters about the topic to students. In the observation, T1 took students to the informatics classroom in a course hour, but the lesson could not be taught there because it was not available. T1 indicated this situation like this "... *the conditions of the school is not good, there is no material in the laboratory. The informatics classroom is not available. One-hour visuals per week are not enough for students. School has lots of financial problems...*" It was observed that T1 teacher experienced some problems related to class management. T1 tried to prevent these problems by giving minus point to students who were talking within themselves.

3.6. Features about L2 school, L2 classroom, and T4 teacher:

The L2 school that is in the central district of Sakarya province was established before the proclamation of the Republic of Turkey. In 1957, the school building was demolished with the earthquake, it was given a label as dangerous, and a modern building was established. In 1960, the school began to give education service. The additional building, next to the school, and having 6 classrooms, started to be constructed in 1985, and in September 1987 it was opened to education service. The school is triplex with a total closed area of 735 m². The school garden is 1300 m². There are 13 classrooms, 2 kindergarten classrooms, a science and technology laboratory, a technology design workshop, an information technology classroom with 19 computers and a printer, a manager room, a manager assistant room, a guidance room, a teacher room, a library, and a canteen in the L2 school. Moreover, the school gives education service with a manager, 2 assistant managers, 2 kindergarten teachers, 15 class masters, 19 in- field- teachers, and 2 servants. Furthermore, there are 31 students in the kindergarten, 57 in the first grade, 53 in the second grade, 78 in the third grade, 68 in the fourth grade, 99 in the fifth grade, 98 in the sixth grade, 93 in the seventh grade, 121 in the eighth grade, total of 698 students. There are three sections for each grade. In L2 school, morning and afternoon education system is used. The school is in the 24th order in the province according to the placement test (SBS) points.

T4 teacher is one of the two science and technology teachers in the L2 school. T4 was graduated from chemistry department of the faculty of arts and science, and T4 has been working for 7 years in L2 school, and for 16 years in general.

The observed classroom in L2 school is approximately 35 m² and has 42- student class size. 24 of the students are male, and 18 of them are female. Students sit down in doubles or in threes on their desks. The movement area of students is restricted because the class is crowded. Figure 4-6 shows the class arrangement.

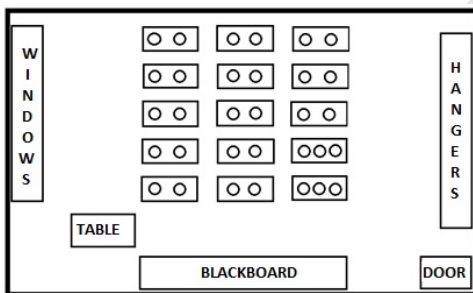


Figure 4-6. The observed classroom in L2 school.

As Figure 4-6 illustrated that student desks are arranged one after another. It was observed that the interaction between students is restricted because of the desk arrangement, and lack of group work. Moreover, T4 did not apply any activity during the lessons. T4 taught lessons mostly in a traditional way and sometimes made students attend the lesson by asking questions. T4 indicated his/ her opinions about the conditions of the school, and the class size as follows: “... I cannot apply the curriculum because our classes are too crowded. Our laboratory is not available. The conditions of our school are not sufficient...”

4. RESULTS AND DISCUSSION

In the current study, the effect of inputs in relation to the features of the school, the classroom, and the teacher on the application of science and technology curriculum was investigated. It was found that schools with high SES had better school and classroom environments, and more advantages than schools with middle SES, and schools with low SES; similarly, schools with middle SES had better school and classroom environments, and more advantages than schools with low SES.

Studies show that in terms of the arrangement of physical environment that affects classroom environment either positively or negatively, the careless, inattentive, and incomplete arrangements of the followings affect the class environment negatively: designing the classroom plan, preparing the materials that will be used in teaching-learning process, arranging seating order of the students, arranging the visuals as pin boards on which student exhibit their activities (Çakmak, 2005). In addition, for student centered education, a functional classroom environment in which students' active participation is supplied, is foreseen. However, in most schools with traditional classroom environment, teachers are asked for student centered teaching (Saritaş, 2005). It can be indicated that science and technology teacher in H1 school provides students with group work by arranging student desks, uses science and technology laboratory functionally in the teaching-learning process, and encourages students to do new activities by hanging their activities to pin boards even though the classroom in H1 school has traditional seating order, and high class size. In H2 classroom, whose class size is high, the seating order of students is in a U shape so that multi-directional communication and interaction between students can be supplied. When the communication in the classroom is multi-directional (between students and the teacher as well as within students), it will be useful in terms of supplying information flow, determining problems, and interest and abilities of students, bringing students in positive behavior (Helvacıoğlu, 2011). In M1 classroom students sit down in a U shape. Moreover, due to small class size, the interaction, and communication are provided easily. This is in line with researches that in classrooms with small class size, students have more opportunities to attend activities (Başar, 2001). In M2 classroom, the class size is small but student sit down in a traditional way. It was observed that in M1 and M2 schools, lack of laboratory and inadequacy of materials prevents the application of activities in the curriculum. Nevertheless, in both schools, unperformed activities are watched to students with the help of the projector, computer, and the internet connection in the classrooms. Research supports the importance of physical environment in the class that supporting physical environment in class with technological materials makes students be motivated, increases learning, and provides new information with persistency (Başar, 2001). For example, in H2 school, science and technology teacher has an advantage in terms of technological equipment in the classroom. Teacher in H2 school makes students watch unperformed activities with the help of technological equipment in the class. On the other hand, in L1 and L2 classrooms, high-class size, traditional seating orders, lack of laboratory and materials, lack of technological equipment make the application of science and technology curriculum impossible as it is supposed to be. This is in line with the study of Erdoğan (2007), which found that teachers indicated that high-class size affects the application of teaching methods and techniques as well as new evaluation methods negatively, because of this problem, they could not arrange their classrooms appropriately to the group work, and they left the seating order in a traditional way.

Shedding light on the findings of the current study, in order to prepare an effective and fruitful teaching-learning environment, and to provide necessary educational materials, the inadequacies of schools and classrooms should be determined, and necessary resources to compensate those inadequacies should be created.

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School and Parents' Cooperation on Formation of Value Orientation of a Child

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Abstract

The family and the school belong to the institutions that – to the greatest extent – affect the formation of the value orientation and shaping the child's personality. The child could create a desired value system only with difficulties without the continuing education of the family and school. Educational treatment can be more successful the more each of the partners fulfils its own roles in the system of educational delegation of the authority and labour sharing. Because of the importance of creating a desired value system of children as our future generations, our paper is focused on the cooperation of the family and the school in shaping the value orientation of children.

Keywords: family; school; cooperation; value orientation

1. Introduction

Family and school are institutions participating greatly in forming of child's value orientation and its character development. Without these two elements, formation of value orientation would be almost impossible. School complements primary family education. Family is the most important element in child's education and is greatly affected by consequences of education itself. Considering this immense responsibility, the collaboration between family and school has to be strengthened. Parents should be an active part of education and should be constantly interested in a "school life" – child's work and teacher's work, as well as positive changes connected to school's development.

1.1. Family and School: their complementary roles in value orientated education

Family is the first environment with an educational function, securing care and child's ability to function as a part of society accepting its values. Family is the first to deal with value orientated education. Children learn not only during the process of education, but also by observing and imitating everyday behaviour of their parents. Another important role of a family is transmission of ideology, culture and beliefs. Family education is important mainly in the early years of a child, as some responsibility has been delegated to formal institutions, school principally.

Considering social changes, society relies more and more on school to control development of child's personality and its ability to function as a part of a group. However, school cannot solve all social problems, neither can it substitute family education. Family is the first and the most important environment in which values

are being formed. Children need love, attention and role models in order to evolve into independent and responsible individuals.

Primarily, school provides a service to a family and, thus, cannot act separately. School's cooperation with family is based on natural demand rather than a "good will" of teachers. (Rabušicová, 1999, s. 22). Therefore, during the formation of value orientation of a child, school cannot work without parents' cooperation.

Parents are primarily responsible for their children's education and they have to carry out their tasks responsibly. On these, school education is based. Communication between teachers and parents and exchanging of both information and advices is necessary for value orientation forming.

Mutual cooperation between school and family requires coordination of educational tasks of both elements. The main aim of this cooperative education is development of child's personality. This task has to be carried out cooperatively. Accepting mutual responsibilities is only making sense if each of the elements is able to accept his own competence responsibly. Educational process is more sufficient if each of the elements is efficient in its very own task, and values of elements are in accordance. Not only parents are helping teachers, but also teachers are helping parents. The way schools need support from families, families need support from schools. However, neither schools nor families have exclusive position when dealing with social and moral changes. Both family and media are important parts of educational process.

When forming value orientation, there are some issues to be addressed:

- Discrepancy of family values, school values and values presented by media. It is impossible to ignore other elements influencing forming of value orientation. Thus, it is necessary to educate children and young adults co-ordinately and in cooperation.
- Transmission of educational function from family to school. Some of the values have been redefined while shifted from family to school, therefore; there are more challenges to be faced connected to the content of these values.
- Value oriented education is a responsibility of whole educational community, results of formal education are not sufficient.
- Moral crisis in society, disappearance of traditional values and appearance of value alteration accompanied by educational system crisis. In such system, terms education, nurture and schooling are easily interchangeable.
- Family values crisis and loss of teacher's status (Cobos Pino, 2009).

Values as a content are acquired easily and school is not the only place for forming value orientation. Value orientation should be formed not only during the process of formal education, but also through imitation of real-life role models in family, school and outside school.

Realization of value oriented education is a collaborative task; family, as well as children and young adults collaborate with school and other educational institutions. However, it is not only school and family responsible for forming of value orientation of children and young adults. Forming of active and cooperative citizens is responsibility of all elements with educational nature. Task of all these elements is to create collective and complementary goals to improve society.

"Value oriented education deals with "social project" spread through time with numerous social participants" (Cobos Pino, 2009, s.3). It is a process both cognitive and affective which helps individual with his social integration. It deals with moral dimension of a character while forming autonomy to create such principles and

norms that will guide him and help him to think and act. Without cooperation between family, school and society, conflict of values appears.

Important part of value orientation forming process is school's responsiveness to thoughts and ideas, as well as parents, and flexibility of school management. Responsiveness is followed by school's social status change and, according to some authors, should be cultural, sporting and social centre of community in a specific region. As for the relationship between school and parents, collaboration has to be strengthened, with emphasis on equality, cooperative decision making, partnership and competence sharing. Considering value orientation forming of children and young adults, it is necessary for family and school to agree on common values and their realization. This is influenced by position and priorities of both such institutions.

1.2. Family and School Cooperation

Family and school cannot work separately. Both are part of social processes, cultural patterns, and political and legal systems. Their roles in the process of value orientation forming and cultural transmission are irreplaceable. Family and school strengthen value orientation, attitudes and decision making of teenagers as follows:

- Family is principal educative element. Family is the only environment influencing child from its birth and is able to create efficient conditions for development of child's personality.
- There has to be a partnership based on cooperation between school and family. This partnership enables child's development in both school and personal life. Moreover, parents have to be part of professional counselling and training.
- Value oriented education is a component of school program. Both classroom and school climate may influence forming of child's education and values.
- Teachers serve as role models for both children and young adults, preparing for this responsible task during their studies.
- Besides educational responsibilities, school is responsible for culture of teaching subjects, such as religious education and ethics (Gugel, 2012).

The main goal of a cooperation between school and family is balance between influences of both elements and prevention of any conflicts. Cooperation should be achieved throughout various activities leading to an improvement of communication and awareness. Each one of teacher's strategies has to be planned and beneficial for both parties.

It is required that parents, when choosing a school, are aware of values transformed in this school (Barniol, 2003, In. Lorca, 2005.). Emphasis on parent's involvement in a child's school life represents school's acceptance as the most important element in education.

Parents have a right to be a part of school's politics to get an assistance from school. The best way how to achieve this is by being a part of Parents' Council, where its members are making decisions dealing with child's education; values; pedagogical principles dealing with school life; ways of cooperation between family and school; and aims influencing this cooperation. "Fathers and mothers are participants and protagonists of educational process of a child. Thus, it is not only their right, but also duty to inform, judge, make decisions, and supervise this process" (Guerra Santos, 2003, s.137).

As far as rights go, parents are usually interested in child's behaviour at school rather than in learning objectives; methods used in teaching process; or assessment. Parents' exclusive concern in grades usually leads to difficulties in cooperation. Legally speaking, parents have every right to know all the information connected to both their child and school. However, they use this right rarely.

Most researches dealing with mutual cooperation of family and school are focused on parents' involvement in school life and its impact on child's results rather than on importance of parents' involvements at home, even though it represents a significant part of value orientation formation.

Family relationships, activities family are doing together, family's way of life – all of these have an impact on behaviour of a child and can increase efficiency of teacher's role in process of value orientation forming. School should encourage parents to provide positive home curriculum because of the importance of basic elements and patterns of family life for cooperation of school and family.

The process of value orientation formation can be influenced, by both school and family, as follows: enforcement of such norms that are important for society and are part of it, as well as specific experiences based on conflicts (Giesecke, 2005, s. 181).

Good cooperation when forming values includes:

- Good communication – communication is a necessary part of family-school relationship and is important for further cooperation.
- Sharing and respecting of roles – family and school can share roles and tasks quite clearly. In child's upbringing, both institutions are engaged, however; it is not possible for teachers to role as mother or father, and for parents to “teach” teachers how to do their job.
- Cooperation based on specific agreements – good cooperation is not only pleasant, calm and hearty agreement. The most important elements are child's results rooted in such cooperation, and benefits that meetings of parents and school bring to a child. This cooperation reaches compromises, concrete and recognizable, that can be evaluated when considered as decisive criterion of a relationship between family and school (In. Programa Nacional de Convivencia Escolar, 2007).

In Practice, there are always programs and initiatives provided by school that support and develop cooperation between family and school. If a teacher wants to create cooperation-friendly environment in order to help students to achieve good results, it is important to realize such cooperation may not be occasional, one-way with a small amount of mutual objectives, but long term with a mutual objective (Frýdková, 2010). In such environment, parent is not just an observer of the educational process, but also helpful participant in child's education.

In context of this issue, it is important to consider options of cooperation when forming value orientation of children and young adults. Should school ensure forming of desirable value orientation, the emphasis cannot be only on tasks that student has to carry out, but also their meaning, significance and objective. Trough these tasks

students deal with various scenarios that, depending on their theme, lead them to an acquisition of some values applied in future life.

Active cooperation between family and school is necessary when considering development of a child's personality. This is done through forms, and their intensity; exchangeability; and focus are dependent on teacher and school management. Influences of school and family environments on a student are in balance, complementing each other. Their cooperation is the key element not only for student's success at school, but also for his education. Degree of their connection is dependent on mutual attitudes, procedures and interactions.

Mutual relationship with shared responsibilities is crucial for cooperation between school and family. The main purpose of its development is to help children being successful in both school and personal life. Specific parents' activities provided by a school are proof that such relationship is working well. Variability of these activities may be time consuming for both school and teachers, but this can be partially solved by engaging parents. These activities are chosen and directed by a school depending on its resources (personal, financial) and school's conception.

When transmitting values, relationship with a family is crucial. Therefore, it is important to think about activities that will be done with parents (timing, methods, equipment, transmission of information, etc.). Participation of parents has to be planned ahead and managed well to prevent any barriers.

Family plays the key role in learning and accepting of values and it is important to keep in mind that children learn these by imitating and relating to an adult. First experiences with values are gained in family environment and value system is formed by everyday interactions and activities. That's why the communication and cooperation between family and school is so important and is a frequent subject of researches.

Some of the results of such researches abroad has shown that cooperation between family and school transforms. School is open to parents, environment and creative projects, and creates space for not only parents' active cooperation, but also their education and development of family education. Changes in both value systems and society are projected into family life and education. In the past, values were more stable, passed down from generation to generation. Today, values transform and change constantly. The consequence of an absence of more stable values is parents' confusion when educating their children.

Formation of value awareness of a child in its first years is determined mainly by family life and role models, parents predominantly. Later, education is influenced by school life of a child: environment, interaction between peers, and cooperation between family and school. Family becomes part of a school community and both child's success at school and shaping of value consciousness are formed by mutual cooperation between school and family, as well as family's participation in educational process.

1.3. Methods of family and school cooperation at shaping the value orientation

There exist a number of variants and forms of cooperation which are used for family involvement into the school performance, as well as the means of communication and collaboration with parents, teachers and pupils that also provide possibilities for real cooperation of family and school in shaping the attitudes and values of children and youth.

Basically, there are three main lines how can parents work with the school:

- through the school council, through their representatives, and voting bound with important aspects of upbringing and education of their children;
- through Slovak board of parents' associations, through its active members;
- through the teacher and various forms of communication and cooperation.

Family plays an important role in acquiring the values, so we must not forget that children acquire them mainly through their imitation and identification with the adults. The first experience with the values a child obtains in the family environment, where the value system shapes everyday interactions and activities. Therefore, the communication and cooperation between home and school is important, and it becomes the subject of various studies.

Traditional methods and forms of cooperation, which can be classified through Parent Association, consulting meetings, open classes, writing references, or parent visits at the school environment belong to the most frequently used forms. In terms of education levels, these forms are only used for information purposes, because they do not provide sufficient space for active cooperation of parents, teachers and pupils in shaping the values of children and youth, but it does not mean that these forms are not justified in the moral education of pupils. Lack of space for families and school cooperation in value orientation creation can be filled out by innovative methods and forms of cooperation which are mainly used abroad, but in terms of our schools they can also find their importance and application. These forms are largely informal in nature, but provide many opportunities for mutual transmission and creating real situations where children have the opportunity to emulate their parents and teachers as the role models to receive the applicable values in life.

The collective cooperation of families and schools is a good choice for the beginning of the school year as a **"welcome meeting of the school board and parents bound with the information market "**. The afternoon meeting of parents with children, for example, in the park, can be the opportunity to meet up with friends and meet new families. The information market provides good opportunity to gain important information from school officials, but also get useful advice from parents of students from higher grades: what is proved and what services can be used, etc. (Lauermann, 2010).

"Guide for Parents" which parents receive after the new school year opening (after taking their child to school is also appropriate, open and very specific and real invitation of parents to become the co-partners. The guide begins with the Director's foreword, which explains the importance of the document and directly calls for parents' involvement in the school events. The guide enables parents to tap into the learning process at school and raise the aims and values of the school. The last page provides specific space for parent signature or the signature of the child which confirms that the manual was thoroughly studied and all the requirements, rules and principles needed for successful operation of the school are understood. The guide can also familiarize parents with the educational philosophy of the school and its educational and training objectives. Next part of the manual can contain rules and regulations, including how to deal with critical issues, as well as the rules for telephone communication with the school. The most important part of the document provides clearly elaborated description of the educational program at various levels of the school, including the teaching methods, evaluation criteria and rules for homework specification and its processing.

School magazines, newsletters, calendars, school web site create an inseparable part of partnership with families and school.

Discussion forum on the school **website** is an integral part of the school information system. Parents, teachers and school management have the possibility to participate in the non-anonymous discussion and react to recent

school events . The interactive communication of pupils with teachers and school management change parents position from passive recipient of information to the real school partner.

Lectures, discussions and conferences for parents. In some countries are held conferences for parents, which involve parents and teachers and their primary aim is to provide recommendations and advice to those parents who are interested in various topics related to the education of their children. Themes of conferences are set according to the parents' interest. The topics are not only provided by relevant professionals (psychologists, special educators, pediatricians, etc.), but also by experienced teachers and parents.

Parents can be initiated to cooperation also by using the form of "**Book Fair**", which takes place once a year, for example, before Christmas. In the school premises after several days offered different genres of literary production. Parents, who collect books from book catalogues, ensure their ordering, preparing the selling premises, posters and also books selling and answering questions about the books. Proceeds from sales is used for the school needs. This form of cooperation is also trying to point out, that reading is not only a source of knowledge, but also the source of joy and value by itself. It is not only an exhibition of books in school premises because there are other programs, such as meetings with authors and illustrators of children's books. Under this form are also offered other opportunities to shape the value orientation in partnership with families and schools. Each teacher can mention his or her favourite book from childhood that children can read along with their parents. Through that children come to know the older literature, and parents can find their favourite titles. The similar focus has also informal class competition in "**Reading records**". Children record in the chart titles of books they read with their brief assessment. Parents acknowledge number of read books via their signature. .At the end of the month will be declared the class winner who gets diploma and a book as a reward (Tydlitátová, 2001a).

In addition to own reading also applies aloud reading. The book can be in the class read by teachers, parents, older siblings and other representatives of the school community. Great importance belongs to aloud book reading by grandparents or retired people. This form of learning and communication with someone older at school is mutually beneficial, because some grandparents or retired have the opportunity to gain the impetus for themselves for example their children learn make them familiar with computer using.

The same emphasis is given also to the speaking ability in front of people ("speaking skills"). Children defend and explain their projects on "**Science Fair**" in front of their classmates, but also in front of their teachers and parents. Each child personally chooses the topic – subject of science, which he or she enjoys and has knowledge about and process it separately, for a few weeks he or she keep a diary where he or she writes the results of experiments, observations, collected pictures, graphs, and finally everything evaluates and displays. Topics are provided by school, websites, specialized magazines, or parents who are not excluded from similar actions.

A special room is purposefully made for parents, children and the public, which is opened throughout the day or during limited hours and can be used as a library, providing relevant public education for parents and literature for children. In this room can work a few parents as volunteers, is the natural centre for working with a book. The library can be implemented in the educational process through reading out books on various topics bound with teaching, and these topics also lead to discussions. The room creates a space for collaboration with parents, it can be reserved for parents who can have the opportunity to read aloud for children, talk with children about the books, try to introduce and offer the favourite authors of their childhood, familiarize with books published in the year they were born, they or their children develop a list of favourite family titles. More reading is associated with an effort to limit the use of television and computers for computer games. Each family can receive a rich list of activities that can be done when the TV is turned off. School alerts parents to the library

websites or libraries in the area, recommending titles and children's reading. It does not matter which means are used for parents and children to share the joy of reading, it is important to provide the child with reading experience as a valuable and joyous activity (Tydlitátová, 2001b).

Room for parents can be also used as a *"tea room"* in which parents, teachers, school management can discuss, inform each other and consult on various issues related to children - pupils. The purpose of the meeting is the mutual recognition and elimination of prejudices of parents and teachers, so that in a situation when they express their dissatisfaction they are able to avoid misunderstandings and conflicts, and work together to find the effective solutions (Lauer mann, 2010).

Another informal meeting helping to shape many social and spiritual values is *"selling homemade cakes and pastries"*. Each cake baked by parents together with their child, gets a price tag. When the school exhibits a large inscription *"Today's sale of cakes and pastries"*, mothers stand at the tables and lavishly offer cakes. On the same day may be also the sale of T-shirts with the school logo, which can be designed and drawn by parents together with children (Tydlitátová, 2001b).

Values such as tolerance, solidarity, cooperation, empathy, etc. can be communicated during the *"International Fair"*. It can be the opportunity of one Saturday, in the school year, when can be paid attention to all the nations represented in the school. In addition to the traditional point of the program, which are laid tables full of national specialties, there is also a possibility to give a lesson of the national dance for children and adults, set the children's theatre, and so on. Our schools are commonly not having a large representation of students and families of other cultures, therefore it is possible to modify the form and prepare presentation of different regions in Slovakia or different cultures. In addition to performance of the country or region and national or traditional meals, may be also presented the most important monuments, the way of clothing, language or dialects, scripts or values of the culture.

Parents can also help as assistants to teach certain subjects, accompany children for trips, play them the piano and sing with them, sew theatrical costumes for children, etc. They can bake gingerbread house together with the children before Christmas, they can talk about their jobs or they can read aloud some stories the primary school.

"Book of reports" or *"Home Projects"* play important a part in the process of formation of value orientation and have impact on pupils' school results and success. Certain topic can be processed in many forms. Children read books, draw pictures, go on field trips, the topic can be brought in a playful way, for example by biscuits baking. At the end the topic is processed separately. In first grade a child can find something on the topic together with the help of parents, in the second and the next classes is the common nature more complicated. Topics may have different ideas: the biography of a famous person, processing and the realization of a short video ads. Gradually become more common compilation of several sources, studying in the library and using the internet. The final work is normally read and sometimes defended in a group of classmates (Tydlitátová, 2001b).

Apart from the already mentioned *"Book of reports"*, children are led to keep their *"School Diary"* - a few sentences, the first are of descriptive origin, but soon they are replaced by their own ones. They keep and as a routine write notes about observations from school, about reading their stories, writing poems and stories. Own stylization is a means that allow and find something interesting to say, encouraged them to send letters to parents, grandparents and friends, keep a diary, write about the trip. Regular habit of writing skills utilization is a valuable asset for the life, where can participate teachers, parents and other family members.

Education is not only a value by itself, but it also shapes the future life of the pupil. One month of the school year is dedicated to the usefulness of different occupations during the "*Month of career education*". Parents from diverse professions come to the class and talk about their work, why is their profession interesting, beneficial and what was necessary to learn during the preparation for the profession.

Recent trends in education constantly emphasize the importance of pupils involvement in the self-assessment process. Involving pupils in the assessment processes causes a partial shift in communication between a teacher and a pupil. It creates more space for communication related to the result and development of a learning experience. For the more complex development of comprehensive and self-evaluation is used the "*Evaluation Book*" (Kratochvílová, 2013). The Evaluation Book is working mostly with verbal evaluation, which provides information on the so-called social qualification of a learner, his or her ability to cooperate, the efforts, diligence, creativity, perseverance. The rating system implies strong involvement of students in the evaluation process at regular intervals. It uses a continuous, regular weekly student self-evaluation, which is supplemented by monthly complex review. This process is completed by semi-annual summative self-assessment and subsequent final evaluation at the end of the school year. Evaluation is systematically and purposefully linking teacher's evaluation to student's self-evaluation. Parents can enter this assessment process via their active participation in the evaluation and student self-evaluation, which is done on a weekly. Comprehensive evaluation concept is based on the work of the objectives and their systematic evaluation. In addition the result is also focused on the learning process and progress, interested pupil's survival, behaviour, desire and effort.

We have introduced several innovative forms of cooperation of teachers, parents and pupils, applicable in shaping the value orientation of the pupil. We realized that these forms may cause scepticism in practice and their application in our country have to overcome several barriers from the side of schools as well as the families. Optimum, efficiency, as well as its utilization is desirable for empirical examination. Innovative forms can change the attitude of parents to the school and the teacher, but also their mutual communication and cooperation. This transformation process is one of the most challenging. Foreign schools, as well as the innovative concepts applied in some of our schools have revised the implementation of cooperation with the school and the pupil's family and they are more aware of the pupil's needs but also of the parents' needs.

1.4. Conclusion

Despite of efforts of educational institutions in engaging parents, some of the barriers and prejudices still persist. These prevent formation of meaningful relationships between parents and teachers that would be based on mutual trust, respect and exchange of information. It is thus more difficult to create such relationship for teachers and to cooperate with parents on forming of character, moral consciousness and value orientation of a child. It is assumed that despite teacher's or school's effort it is complicated, sometimes even impossible, to achieve desirable cooperation. It is important to realize that the most important people influencing education are teachers, parents and child itself. Each of these elements is important. If one of them is weakened, there is a risk that the desirable result won't be achieved. Objectives of family and school have complementary function and they usually overlap. However, it is family that is primarily responsible for child's education. It is important to understand and accept this responsibility and demand an improvement of cooperation between family and school.

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School culture as part of Marketing-orientated approach

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Abstract

One of the possibilities of how to flexibly adapt to changes within the developing society, that strongly influences the school environment, is to apply marketing approaches comprising a complex system of inter-related factors focused upon the school and the school environment – all with the purpose to create a positive image. This paper presents findings related to perception of the school culture by pupils, teachers, employees and parents. Key-factors, that shape attitudes towards schools, cover particularly satisfaction of pupils, employees and parents, mutual communication, evaluation process which asserts effective risk prevention efforts and fosters positive school climate. The Creating an Environment for Emotional and Social Well-Being (WHO) survey, unfinished sentences, semi-structured interview and focus groups were applied as research methods. Gathered results show the following strengths: positive approach of pupils to teachers, providing a friendly, rewarding and supportive atmosphere, the prevalence of the formal-collegial school management model. Among main weaknesses findings state: sexual harassment of pupils (especially girls), feeling safe, applying a duties-based school model as well as on one-way communication of schools with parents. It has been proved that improving the competence abilities of a school lies in utilizing social marketing (education results are of benefit for its graduates as well as for the whole society) and in improving the positive school atmosphere.

Keywords: school culture; marketing communication; school marketing, school atmosphere

1. Introduction

Currently we are facing an increasing number of schools where beside public and state schools there are also church and private ones. Due to this fact it is necessary that schools consider measurements regarded to their survival and transformation – resulting from constant changes within the developing society. Additionally such shifts have impact over the whole educational environment too, and if wishing to improve the competitive abilities, schools have to react adequately.

Mentioned changes are mostly related to demographic structure, different family life-style, rising diversity, political and legislative impacts and technological development. Schools therefore must adjust to changes in accordance with the developing society, new technologies, political and economic decisions (see Džupina, 2011). One of the possibilities is to apply marketing approaches within the school environment i.e. utilizing marketing activities aimed at schools and the school environment with the purpose to improve the general school image. This approach consists of a complex sequence mutually linked areas. These comprise modern and effective methods used within the teaching process in order to achieve quality within the education programme.

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Furthermore marketing approach includes the use of an open communication as within internal level (fostering positive school climate) as within the external one (having good public relations). According to Andreánska, Cabanová (2012) positive school climate increases pupils' academic performance. Actually a successful marketing approach within the education environment is based on fulfilling needs, wishes and expectations of participants on both levels. According to Světlík (2006, p.25) the traditional paradigm on one hand stresses the needs of a teacher and school, whereas on the other hand the marketing approach emphasizes mainly the pupil as well as applies marketing-mixture methods, segmentation and a marketing oriented school structure. When having a look upon subjects being either primary or secondary participants of the education process (equally benefiting from the educational results) we have to state that schools provide benefits to everybody - children gain education, parents have a feeling of satisfaction that they are putting maximum efforts for the future of their child, employees enjoy working in an attractive environment with the opportunity to reach their own goals, wide public and stakeholders contribute to cultivation of the future generations and have an indirect influence over the improvement of the society and finally employees knowing that schools are preparing competent graduates.

However being aware of the needs and wishes of all involved participants is not enough to achieve the marketing oriented approach, it is also needed that a school has technical, legislative and personal capacities to be able to fulfill all needs that will be compared on a higher level to other competing schools. Representatives of the school management have to bear in their mind that only communication materials presenting the school either through attractive websites, newspaper advertisements or leaflets cannot fulfill the criteria for a positive school image when on the contrary there is a stressful atmosphere among employees, passive pupils and indifferent parents (Šramová, 2011).

Some authors assume that the best marketing approach to be applied at schools is the integrated one. (Lockhart, 2005). This approach has already been successfully used within the private sector especially in the area of improving the competence abilities that concern also public and state schools (Lockhart, 2005). A customer-oriented school institution emphasizes not only open communication with its customers, but also with the wide public. Both the education programme and human resources that the school disposes with are undergoing certain evaluation process all with the purpose to improve the effectiveness and the quality of the services (i.e. education) and to take into account the rapidly changing society. This type of management system therefore follows trends of the whole society, labor market and flexibly reacts to these issues. Either we speak of an integrated marketing (based on inter-relation of single elements and mixed-marketing), or a relation-based marketing (based on good relationships with parents, pupils, employees, graduates, other schools, wide public, state government, private sector etc.) the main goal is always the same – to improve the quality of the education process, to use finances in an effective way, to apply successful internal and external communication, to create a positive school image within minds of the wide public. Regarding utilization of the marketing approach at schools we can also speak of a so called social marketing (Kotler et al., 2007), which means that the school, on the contrary to other competing ones, fulfills needs, interests and wishes of its target groups in a better and more effective way, places priorities upon satisfaction and ensures a long-term well-being.

Of course utilizing marketing approaches without having detailed knowledge of the whole school system is impossible also because education process within educational institutions does not follow exclusively commercial principles. According to the research carried out by the University of California in Los Angeles in 2005 (Bauerlein, 2008) it has been shown that not only the popular culture, but also approaches of a school to its students as to consumers lead to neglecting the school by its students. The McDonaldisation (Ritzer, 1996) appears more often also within the school systems, where more crucial is effectivisation, quantification, predictability and monitoring instead of underlining humanity (Šramová, 2011).

Quantitative indicators are first of all measurable and create an illusion of being objective, in opposite to the qualitative indicators which tell us more about satisfaction of pupils, their ability to solve problems, about natural curiousness, eagerness for knowledge, pleasure of learning and results. Unfortunately focusing at quantitative indicators, such as evaluating the education process, the role of a teacher (see in Sokolová, 2010), operation services, the time-tables and not creating stimuli and appraising teachers, occurs at present-day schools very frequently. It is obvious that satisfied employees are not only loyal to the company they are working at, but are also more prosocial oriented that fosters the positive school climate. What is more the school climate is afterwards reflected within mutual relations of a pupil and teacher, teacher and parent, motivation of a pupil towards learning. Furthermore trust, respect, open-mindedness and tolerance are qualities that dominate at school with a positive climate. The quality of the management as well as of the employees (especially the pedagogical staff getting into primary contact with pupils and parents) form an important part of an internal school environment. The school culture made by rules, norms and in some cases by the code of ethics and mutual relationships has a strong influence over work of pupils, the school results and on its climate. The actual organization structure is always reflected within the school culture. Handy (1993) defines the following four types of a school culture that we can face also within the education process: 1. power culture, with a centralized power, 2. role culture, with defined roles and associated duties of an every employee, 3. task culture, focusing upon projects and tasks utilizing creativity and professionalism, 4. person culture, with an individual at the center of attention and with the whole organization adjusted to the person. According to Bush (2003) management models occurring within the school contexts could be divided into six groups: 1. formal model, emphasizes managerial system i.e. authority and influence are concentrated within formal positions held by individuals within the organizational hierarchy, 2. collegial-based model, stressing discussions resulting in consensus, 3. political model, based on a premise that power and influence within institutions is divided, 4. subjective model, aiming at needs and interests of an individual (and not at the interests of the whole institution), 5. ambiguity model, characterized by uncertainty and unpredictability, 6. cultural model, asserting non-formal aspects on the expense of formal elements.

A school utilizing marketing approach focuses, within its education process, upon the most effective ways of pursuing pupils' needs and wishes including all other clients as well. This approach is applied on the vertical and the horizontal level, what means that the vision of a marketing-oriented school is fulfilled by means of all participants of the education process. All employees (the door-keeper, the cleaner, the director, the secretary, the teachers) are forming the image of a school by their mutual relations and approach to pupils that influence attitudes of pupils towards school. Recently there have been few researches carried out that prove negative attitudes of Slovak pupils towards their school, what is actually rather alarming. Moreover negative attitudes towards school and school attendance is reflected within attitudes towards studying, fulfilling tasks and into establishing rather negative mutual relationships. One of the main tasks of any school is to cultivate the school climate that afterwards fosters positive approach towards the school itself and towards tasks of pupils and teachers as well. Creating opportunities for either life-long learning or burn-out prevention programs for teachers might only partially determine attitudes to schools. However improving teachers' competences and attempts to provide a high quality education are important to achieve pupils' progress and to shape a positive school image are very important but by far not the only ways. There are several factors that influence pupils', parents' and all other clients' satisfaction. Among these are also ways of communication with all persons involved, the design of processes of evaluation in order to eliminate risk phenomena such as bullying, harassment, avoiding school attendance, experimenting with drugs etc.

In accordance with the above mentioned facts the purpose of this research was to explore perception of the school climate within chosen schools by all people involved i.e. – pupils, the school personnel and parents.

2. Methods

2.1. Participants

The participants consisted of parents (N=15), school personnel (pedagogical, non-pedagogical and managing staff) (N=30), and pupils of lower (N=110) and higher classes (N=153) at two primary schools in Slovakia.

2.2. Measures

To meet the set goals a combined methodological approach had been applied comprising quantitative and qualitative procedures.

One of the used methods was a survey *Creating an Environment for Emotional and Social Well-Being*. (WHO material adjusted to the conditions in Slovakia) . This survey is targeting pupils and school personnel and it monitors the following seven areas of a school quality: 1. connecting school and home life, 2. not tolerating bullying and harassment, 3. providing a friendly, rewarding and supportive atmosphere, 3. assuring a friendly, rewarding and empowering atmosphere, 4. Forbidding physical punishment and violence, 5. Valuing the development of creative activities, 6. Supporting cooperation and active learning, 7. Promoting equal opportunities and participation.

Unfinished sentences, designed for pupils attending lower classes, were related to school environment, relationships within the classroom and the whole school.

A *semi-structured interview* has been carried out with selected pupils (N=10), and parents (N=15) in order to explore the school culture, image, relations with class-mates, teachers and other school personnel.

A *focus group* has been realized including pedagogical and non-pedagogical staff. More specifically there were three groups including - N=8, N=10, N=12. In this case the main goal was to explore perception of the school quality, culture and the school climate.

3. Results

During data analysis we were concentrating upon interpreting the attitude of specific groups – lower classes, higher classes, the school personnel and parents - towards school, perceiving atmosphere and the school climate.

Pupils within lower classes referred more to technical description of the school. They expressed a very positive relationship with the teacher and moreover they accentuated the thrust of a teacher teaching them. High emphasis was put upon moral qualities of a peer; atmosphere within the classroom was seen as emotionally and socially very favorable.

Pupils at higher classes defined the most positive things related to:

- The school regularly organizes events during which publicly appraises various successes and achievements of its students (85.1%).
- The school has a policy of prohibiting physical punishment (74.0%).
- All pupils are aware of the school rules (77.7%).
- Pupils (mainly female) face sexual harassment (3.7%).

The finding related to the percentage of pupils facing sexual harassment was rather alarming and required a more deep analysis. During interviews it has been found out that this concerns various forms of haptic communication carried out by means of touching intimate parts of a body by persons of an another sex, as well as satirizing the other.

Among weaknesses pupils of higher classes listed the following issues:

- The discipline is kept in a good manner (37%).
- Pupils feel safe (44.0%).
- It is allowed to express dissatisfaction with inadequate or abusing behavior (33.3%).
- The school has a public program me related to the non-tolerance of bullying and to consequences related to such behavior (37.0%).

In this area it is evident that pupils notice lack of discipline-keeping, safety, limited possibilities to talk to the school personnel about inadequate behaviors towards them and lower awareness about examples of solving bullying at school.

According to the school personnel the following quality indicators (assessed using the WHO survey) were underlined:

- connecting school and home life (85.30%)
- not tolerating bullying and harassment (80%)
- promoting equal opportunities and participation (79.4%)
- providing a friendly, rewarding and supportive atmosphere (79.4%)
- forbidding physical punishment and violence (77.4%)
- valuing the development of creative activities (77.4%)
- supporting cooperation and active learning (71.50%)

The school personnel considered the school culture as task culture, the most typical features of which is orientation at tasks and projects. Moreover a formal and collegial-based school management model, where authority and influence are concentrated within formal positions – however when solving particular situations there is a shift towards a college-based model including discussions with the purpose to achieve consensus.

Pupils and parents perceived the formal model that emphasizes authoritative approach, as the most prevalent within task-oriented school management models. Furthermore the ambiguity model and in predictableness of the management has been perceived by this sample. On the other hand simultaneously analysis has shown the perception of a collegial-based model too. According to parents the communication with the school management is rather hierarchic, lacking feedback and clear determining of responsibility, unwillingness to solve conflicts, overestimation of material safety.

In the area of assessing the communication of the school with parents the following three levels have been identified (from the perspectives of involved parents):

- One-way communication carried out by the school towards parents – parent is only a recipient without a possibility for a feedback. Above mentioned approach was according to the parent's perspectives the most dominating one.
- One-way communication carried out by parents towards schools – the school is only a recipient without a possibility for a feedback.
- Both-ways communication where the school and parents are feedback oriented, the consequence of which is either elimination or avoidance of appearing conflicts and stimulating parent's participation at the school life. Moreover such type of communication results in loyalty of parents and pupils and in improving the school image.

Results show that this communication model was the least represented one within the school culture and management models.

Other analysis resulting from focus groups discussions was mostly aimed at perceiving the relationships marketing applied within involved schools. The following issues have proven to belong among the positive ones:

- contacts with local authorities
- contacts with managing bodies
- contacts with career organizations
- contacts with non-profit organizations.

Within weaknesses teachers listed the following issues:

- relationships with pupils, parents, graduates
- interpersonal relationships within the micro-environment
- relationships with other schools
- contacts with sponsors
- contacts with to media representatives
- relations to the public.

Nevertheless several studies are pointing out the choice and importance of the propagation and presentation tools as a factor affecting attitudes towards school activities, what has been proved as insufficient within engaged schools (Jurášková, 2011, Soukalová, 2011).

4. Conclusion

In order to be able to compare certain schools and to assess the school quality the utilization of unified criteria, used to evaluate social and emotional wellbeing within EU countries, should be mandatory. Moreover either teachers or the management and the state government could after evaluate specific issues of interest for a certain period and to compare gained findings not only from the perspective of one school but even from the perspective of a region, state and the EU. Above mentioned factors should have an effect upon improving competition abilities of given schools. However it is also crucial to build a positive atmosphere and not an atmosphere full of stress, uncertainty or fears.

The following important feature is to create marketing orientated schools, to spread social marketing, which means that results of the education process are for the benefit of the graduates and the whole society as well. The school should be aware of the fact that its positive image belongs among key-factors influencing

interest of parents in its activities. Moreover a symbiosis of elements creating the school image is important i.e. localization of the school, cleanness, equipment, high-quality study programme, good public relations and empowering a healthy and positive school climate.

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School organizational climate and violence in the school: case study of two Brazilian schools

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Abstract

The issue of organizational climate has been pointed out by various researchers both from Brazil as well as other countries as an important component in the analysis of situations of school violence. In this perspective, this study presents and analyzes data from a research carried out in two schools in the interior of the State of São Paulo, Brazil. The main focus of the research is the organizational climate of the school and the conflicts ensuing from the interactions, exploring these mainly from the point of view of the teachers.

The climate is understood in this study as being the collective and shared view that the teachers have of the school where they work. It is a set of norms, values and feelings perceived by all the components of the school organization and that can be indicators of the way in which these act in the school.

We can come to the conclusion that the vision of the climate presented by the teachers of the two schools studied presents different natures of conflicts. The largest conflict observed refers to the relationship with the family of the students, who are responsible for the uncivil behavior, aggressions and violence occurring in the school, as well as for the lack of interest of the students in learning. Another problem pointed out refers to the relationship between the teachers themselves and the difficulty in carrying out collective work.

Key words: school violence; schools climate: schools relationship.

Introduction

The issue of organizational climate has been brought up by various researchers, both Brazilian and from other countries (Gonçalves e Spósito, 2002; Guimarães,1994; Spósito, 2001; Revilla Castro, 2002; Blaya and Debarbieux 2002) as an important component in the analysis of situations of school violence. It is from this perspective that the current study presents and analyzes data of a research carried out in two schools in the interior of the state of São Paulo/Brazil. The main focus of the study is the organizational climate of the school and the conflicts emerging from the interactions, exploring mainly the point of view of the teachers.

The option to highlight the teachers' perspectives in the study is due to the fact that in a previous study we noticed that further to the conflicts between students, the conflicts between teachers and students are evermore present in the day-to-day school reality and contribute to a deteriorated school organizational climate. The quote below exemplifies well this situation, as far as the relationship between youths and adults in the classroom situation, where teachers and students are the main interlocutors:

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The perception of the existing tensions between students or between the former and the adult world has affected the climate of the school establishments, especially the action of teachers, who begin to feel under permanent threat, be it real or imaginary. Fear of the student leads the teacher frequently to demand safety, particularly from the police in the school units, compromising the quality of the educational interaction. (Spósito, 2001, pg. 100)

According to Revilla Castro (2002), some authors have worked with the relation of school violence and the organizational climate, broaching issues such as: the size of the schools (Alexander e Curtis, 1995); the interactions among the different groups (Debarbieux, 1997 Astor, Meyer e Behre, 1999); and the disciplinary issues (Baker, 1996). In France, Debarbieux has worked with the concept of incivility, defined as the insults, rudeness, shoves, interpellations, humiliations, as one of the factors that can unleash situations of violence in school, as well as the trivialization of violence. Baker highlights that the excess of discipline can worsen the situation of violence in school. Astor, Meyer and Behre demonstrate in research carried out by them that the violence in school occurs mainly in ownerless spaces, such as refectories or canteens, in the corridors, the patio, etc.

We also recall that the issue of school violence is also seen by some authors, like Charlot (2002) under different aspects. Charlot characterizes school violence as: violence in the school; violence to the school and violence of the school. This differentiation is important as it leads us to reflect on the different processes of production of school violence and therefore the different ways to broach it.

This author argues that the distinction is important in the sense that if the school is in great measure impotent with respect to the violence in school, that is to say, that the violence is a reflection of the world outside, it is not so with respect to its action in face of violence of the school and to the school.

The violence of the school is related principally to the interactions that are processed inside it, the perceptions of the different players in interaction and the violence to the school if related mainly to the interactions of the school with the external community and the family. As far as this last consideration, Debarbieux (2001) focuses mainly on the action of the adults in the school institution, not depending only on the actions of the school itself, but in the relations that it also establishes with the community.

The studies of the action strategies implanted focus mainly on the adult players, employees of the national education system, teachers, administrators, or students. There is no other way here to keep the neighborhood and its inhabitants away, and doesn't this position over estimate the role of the school and the teachers? If certain establishments are more or less efficient than others, isn't this also due to the mobilization and demobilization of the inhabitants of the neighborhood in which they are located? The study (criticism) of "community" action programs in other countries and the development of the partnership between school and family would be a form of thinking and following the educational mutation in course in the dualized liberal democracies, rendering in turn, the same social and sociological dignity to the various players of the education system (pg.185)

Taking as a starting point these considerations, the research on organizational climate in the school was carried out, giving the core prominence to the relationship between teachers and students, as well as the relationship of these players the school institution.

Seeking a more encompassing definition of climate, this can be found in Stewart (1994), quoted by Silva and Martin Bris (2003):

The climate is the total environment of an educational center determined by all those physical factors, structural, personal, functional, and cultural elements of the institution that, integrated interactively in a specific dynamic process render a

peculiar style or tone to the institution, in turn, conditioning the different educational products (pg. 25)

The different dimensions in which the organizational climate can be studied encompass as much those of the structural nature, as well as those dimension of interactive and inter-personal nature. Those of a structural nature relate to such aspects as: size of the institution, financial sources, geographical and economic location, etc. The dimensions of an interactive and interpersonal nature, relate to aspects such as: administration methods, nature of the motivational forces, nature of the communication processes, decision making models, manner of definition of the objectives and organizational norms and control processes, among others.

All the above mentioned parameters are relevant, but the parameters related to the nature of the communication processes were more highlighted in our study, as we consider that these relate more closely to the situations of violence in school.

In this manner, this study had the core objective of analyzing the organizational climate in the schools participating of the research, taking as categories the aspects related mainly to the dimensions of interactive nature and the perceptions of the school teachers.

The Study of the Climate: Methodology and Research techniques used

The climate is understood in this study as the collective and shared vision that the teachers have of the school in which they work. It is a set of norms, values and feelings perceived by all the components of the school organization and that can be indicators of the manner in which these act inside the school.

In a study about the relationship between school violence and the organizational climate, comparing France and Spain, Catherine Blaya; Eric Debarbieux, Rosário del Rey Alamillo; Rosário Ortega Ruiz (1996, p. 299), used the following indicators to study the school climate: the perception of the students of the school's general atmosphere; the perception of the behaviors and acts of violence; the perception of the school's surroundings; the perception of the relationship: between students; students and teachers; students and the school; the perception of learning; the perception of the tension between students and teachers.

Brunet (1992) using the studies carried out by Likert in the 1960s as a reference, points out five fundamental factors in the investigation of the climate: establishment of objectives; power relations; communication; control process; decision making process.

Based on the Works of Brunet (1992), Martin (1996), Falcão (1985) Carvalho (1992) and Blaya & Debarbieux (2002, 2006) and Debarbieux (1996), the climate of the schools involved in the research was studied by means of a analysis model that takes into consideration the following categories:

- a) Vision of the physical environment of the school, the school surroundings;
- b) Relationship between teachers and the administration, general aspects and main conflicts;
- c) Relationship with the students and parents main[†] conflicts and feeling of insecurity.

As a research technique, a quali-quantitative questionnaire and a group dynamics that dealt with the day to day conflicts of the two schools studied were utilized. In **school 1**, 12 teachers answered the questionnaire and 25

participated in the group dynamics. In **school 2**, 26 teachers answered the questionnaire and 14 participated in the group dynamics.

School 1

The school is located in a middle class residential neighborhood, with a few commercial sites. A large part of the local community has their children enrolled in private schools. Therefore only 5% of the students live in the neighborhoods near the school, being that the other 95% come from far away neighborhoods and use public school transport as means of locomotion. Very few of them go to school by bicycle.

The students come from various neighborhoods, for example: Bom Sucesso, Novo Wenzel, Jardim Centenário, Jardim Santa Eliza. All of these are considered peripheral neighborhoods. The school is also attended by students who live in the rural zone of the municipality. The school works in three shifts (morning, noon and night) and has a total of 1118 students from the 5th to 8th grades, Middle school and EJA.

Vision of the physical environment and the school organization

All the teachers who took part of the dynamics and who answered the questionnaire consider the school to be well organized and clean. The words used to characterize the school were: excellent, clean, serious, organized; nice looking and well preserved school.

School 1 is a school that does not undergo outside aggressions and has a reasonably well organized and ample physical space, though it is not taken care of well enough. While the research team was there, the school was undergoing refurbishing, which would make it “tidier”, but it is noticeable that the resources are not sufficient to maintain the school’s physical structure. Even so, the teachers present an optimistic and positive vision in relation to the physical aspects, and important component in the discussion of climate.

In this perspective, there are research and studies relating to the conformity of the physical school space, which as already analyzed by some researchers in Brazil (Guimarães, 1994; Cardoso, 2002; Dayrell, 1996; Gonçalves, 1996) not only produces impact on the social relations establishes inside it, but also established links with a certain ideological perspective about education. Quality education also passes through the quality of the structure in which the educational process is occurring and contributes to the value given to the professional and to the student, contributing to a climate that is more propitious to learning and to interpersonal relationships.

The criticism referred to the number of students per classroom, in average 45 to 50, to the lack of resources for the school and the lack of autonomy.

One of the teachers made a comment about the mobility of the students in the school space, which is not directly related to the physical structure of the school, but to the manner in which it is organized:

The student has to be inside the classroom all the time. The student does not have the liberty to circulate in the school area and this makes him want to cheat the system.

Relationship between teachers, general aspects and main conflicts

We noticed certain incongruence between the data on the questionnaire and with that presented on the group dynamics performed. In the questionnaire, the twelve teachers who answered referred to the relationship

among their colleagues with the terms: *good relationship, pleasant, smooth, friendly and trustful, excellent*, as can be seen in the table below:

However, in the group dynamics, statements comes out that contradict these characteristics given by the teachers as answers to the questionnaire, presenting a vision that brings up difficulties in the collective work, and tensions, as the below statements demonstrate:

- *A divided school. While one side fights to improve, the other keeps its arms folded (tug of war).*
- *Teachers without motivation, disunited, and anguished.*
- *Group work is still faulty, there is a big gap related to acting collectively.*
- *The team does not use the same vocabulary.*
- *Highly intense tensions*
- *Individualism, a lot of complaints and little action.*

The exchange of experiences and ideas among the teachers, a question on the questionnaire with the core objective of analyzing the collective work and decisions in the school, had positive answers from almost all of the teachers, however, in the dynamics, there were manifestations that contradicted these answers, as we will see further on.

The difficulty of collective work came up with much emphasis in the answers given to the questions worked on in the group dynamics, when we could observe a certain tension among the teachers, as well as in the debates. The division in “cliques” was demonstrated, there having even occurred a situation where one of the teachers refused to share his text with a colleague.

The answers given with respect to the question of which would be the ideal school, also corroborates with this analysis, as far as it showed up in a good number of the answers that point out that the ideal school would be that one where a collective work existed, which led us to conclude that this was not present, or there was little of it. The answers given were:

- *All are united in one ideal.*
- *Plan of united action.*
- *Where the whole school team: administration, teachers, students and employees unite to reach school success.*
- *United... everyone running in the same direction in favor of one sole objective. Involved, firm, pioneering, without fear of innovation*
- *A democratic school that seeks to promote the union among the teachers.*

Relationship with students and parents, main conflicts and feelings of insecurity

The relationship with the parents and students in the school 1, followed the standard of other schools already researched, in other words, it demonstrated great conflict among teachers and students and school – parents.

The question on the questionnaire that asked if the teachers had already suffered any type of aggression, received 8 positive answers and 4 negatives, which means that 66.7% of them suffered some type of aggression. There was no tale of any physical aggression on teachers by the students, but only verbal aggression, or, as many affirmed, “lack of respect”.

In the issues worked on in the group dynamics, a large part of the answers relating to conflicts in the school, referred to the students, these conflicts being of different natures, as observed in the answers that we will discuss further on.

Despite the conflict with the students expressed in the questionnaires answered by the teachers, we could observe a positive view of the climate in this aspect. The words that referred to the students were: the best possible; very difficult; very good; respect; fondness; some problems, many students have no limits; good; very good; I try to talk to the students.

However the statement of one of the teachers synthesizes many of the feeling described by a good part of the teachers at the school: *The school is excellent, what spoils the school are the students who do not respect the administration or the teachers.*

The terms “lack of commitment” and “disinterest” in studying were the words most utilized, both in the questionnaire and in the group dynamics, to characterize the school’s students. The following answers demonstrate this vision:

- *The big conflict today is the between students and teachers, the student does not want to learn, the teacher gets more frustrated every day, feels discontent and this causes constant conflict.*
- *Unmotivated students with socio-economic problems*
- *The school serves a clientele from far away neighborhoods, that’s why they show no attachment to the school.*
- *Students uncommitted to studying*
- *Lack of respect among the students who fight and use bad language.*
- *The school rules are not obeyed*
- *The teacher insists that the student learn the contents and they don’t want to, do the contradictions start there*
- *Some students (undisciplined) are frowned upon and sometimes even looked upon as bandits.*

These words illustrate one of the main points of conflict between teachers and students that directly influence the school atmosphere, as they point to constant tension that originates in the assumption that the students are not interested in what the school has to offer and that they resist learning in all ways, although they give value to knowledge for their lives, as we will see by the questionnaires answered by the students.

Despite the conflict expressed by the teachers, these do not demonstrate that they feel the school as an insecure place. Of the 12 answers to the question about if the teachers feel safe in the school, 8 indicated that there was good and respectful coexistence and one says that students sometimes “say adolescent things”. The answers given, copied below, illustrate this fact:

- I never felt threatened.
- Sometimes the students say adolescent things.
- Climate of total respect.
- Atmosphere of mutual respect.

- I have a good coexistence with the students.
- I respect the students and they respect me.

In this way, we can come to the conclusion that inside the school as well as in its surroundings, the teachers did not show any feelings of real threat.

The other point of constant conflict in the school is the teachers' vision of the students' families in the relation of parents to the school. One marked characteristic in the school's statements are the constant demands and attribution of guilt to the families regarding the problems that the schools face with students.

In the questionnaire question of whether there is the participation of the parents in the school, 9 of them answered that there is not, only two confirmed that there was participation and that the relationship with the parents is "good" ... They stated that there was little participation or that they only participate when they are called. One has to note that there are statements that the parents are only called in when there is a need to talk about the child's conduct, so that they take some action.

- Only when there is a need to talk to the parents about their children's' behavior.
- The parents are called and informed so that they can take action.
- Pleasant
- Objective is to solve problems
- The same reaction of the parents to the administration and the teachers.
- I don't know

In the group dynamics the absence of the parents in the school life of the student was very much emphasized as one of the big problems that the school faces, as shown by the following statements:

- *The students are unmotivated mainly by the absence of the Family and by the educational system itself, as there are no demands made for learning;*
- *The school serves a clientele from distant neighborhoods, which is a complicating factor. It is difficult for the parents to accompany*
- Lack of commitment by the parents with the student's school life.*

Summarizing the analysis of the data obtained in school 1, we come to the conclusion that the vision presented by the teachers about the climate in the school presented conflicts of different natures. The biggest conflict observed refers to the relationship with the students' families who are considered responsible for rude behavior, aggressions and violence occurring in the school, as well as for the lack of interest of the students for knowledge. Another problem pointed out refers to the relationship among teachers and the difficulty of collective work.

5. The concrete difficulty of the school's location, geographically distant from the families, in our view is not the major problem. The main issue that we found in the question of school-family is the desire of the school to have students with a different social reality. Although in the question about the impression of these about the work with children in problematic socio-economic conditions, the answer was that they didn't mind, the concrete fact is that they constantly place the socio-economic condition of the students as one of the causes of a behavior of lack of interest in learning. The school considers that it is the family that should promote the

shaping of ethical and moral concepts and of standards of behavior adequate to the social context, which enters into shock with the concrete reality of the majority of the students of public schools and the values of an individualistic society with huge social and economic inequality.

The feeling of insecurity and the physical space of the school was one of the issues little brought up by the teachers, leading one to conclude that there is a feeling that they feel secure and that the physical space of the school is pleasant.

In this manner, we come to the conclusion that the organizational climate in school 1 as presented by the teachers is positive except for the question of the conflicts with the students due to their lack of interest in studying that causes indiscipline, aggressiveness and violent attitudes. We highlight in this perspective the blaming of the families for this context, which contributes to a negative climate in reference to the relationship of the school with the families.

SCHOOL 2

The school is located in a densely populated peripheral region with low socio-economic indexes. In this region, popular standard housing and residential complexes created in the decades of the 80s and 90s by the state. It serves approximately 800 students from the 5th to 8th grades in the Middle School, distributed between the morning period and the afternoon. The majority of the students live in neighborhoods near the school.

In the neighborhood where the School is located there is a lot of degradation to the environment caused by the clandestine disposal of solid waste (domestic, industrial and even hospital) and the existence of large areas of rubbish and the launching of raw sewage into the waterways, situation which is commonly seen in the city outskirts of developing countries.

The violence rates are high and they characterize one of the most violent regions in the city. The daily routine of the population is linked to police actions in combatting crime and drug traffic. The local population knows where the drug points are and know how to distinguish the drug pushers and the hoodlums who circulate the neighborhood. However, as in all the regions of heavy violence, there is no open talk about the problem, because of the fear and the need of social coexistence imposes the law of silence. Unfortunately this seems to be the reality of this population.

Vision of the physical environment of the school and its surroundings

School 2 presents a badly compromised physical structure, with badly cared for, dark environments, full of graffiti and with metal bars everywhere.

The school's image corroborates with the teachers' statements about the school's physical space, demonstrating how much this factor is a result of the climate present in the school.

The physical structure of the school shows up a constant situation of invasion by students and youths from the community who come in to speak to the students, "look at the girls", play ball, etc. Despite this, we could verify, by the semi-open questionnaires answered by the teachers, that they don't feel threatened. 18 teachers answered that they don't feel threatened and 6 answered that they do. The invasions are considered as an important point of conflict, however they do not necessarily constitute a threat to the property and physical structure of the school.

Reinforcing what was already discussed in school 1 with respect to the physical space, it not only impacts the social relations established in its interior, but it also established links with a certain ideological perspective about education. Quality education also is given through the quality of the structure in which the educational process occurs and contributes to the valorization of the professional and of the student, contributing

to a more propitious climate for learning and for interpersonal relations, something which certainly is not happening in school 2.

Relationship between teachers: general aspects and main conflicts

The data about the relationship between teachers demonstrated that there is a “good” relationship between teachers, although a certain amount of criticism appears in the statements. Ten answers state that the relationship is good and relatively good and 06 answers state them as a bad. The other answers were neutral, characterizing them as “professional”, “reciprocal” or without an answer.

The answers to the question posed in the group dynamics carried out and that related to the characterization of a bad relationship were:

“ The relationship is not very good, because there are teacher who do not carry out their roles as they should”.

“ The teachers are very individualistic and divided

“I do not get involved with my colleagues because of previous problems (gossip, intrigue, etc.).”

“There is a lack of unity”

“Lack of communication among the work group”

“I feel the administration is negligent and part of the teachers don’t even talk to the others”.

“There is not always articulation between people in the work”.

We could notice by these answers that there is a climate of little integration between the teachers. However, in the answers given to the other question in the questionnaire about whether there was an exchange of experiences and ideas among teachers about the general and pedagogical issues in the school, the great majority answered yes, and only 3 answered that this exchange did not exist, as can be seen by the table below. In this manner, the data appear to be contradictory with respect to the positive climate among the teachers.

Table 1. relationship -teacher-teacher

Bad
Reciprocal
Relatively good- 3 answers
Good- 5 answers
Very good
There are distinct groups of older and newer teachers. The older teachers isolate the newer ones

The relationship is not very good as there are teachers who do not carry out the role they should
They are very individualistic, divided
A few lack communication
There is a lack of unity

With respect to the relationship with the administration, a few criticisms were put forth by some teachers, although the majority of the answers state that there is a good relationship with the administration. The criticisms were in the vein of negligence by the administration with respect to the school as far as its physical as well as pedagogical aspects go, as can be seen in the table below:

Table 2. Climate –Relationship-Administration-Teachers

Distant
Some have respect, others don't
Reciprocal
Lack of collaboration and communication
Good
Communication difficulties
Good, however require more connection and dialogue
The Director is very humane
The teachers have the liberty of exchanging ideas
They are present and give us support.
I have hardly any contact with the administration
There is respect and support
Open to dialogue, but absent
Medium, the administration should have a stronger pulse and demand more from the teachers and employees
Harmonious and respectful
There is conflict between the teachers' vision and the school administration

Relationship with the students and parents, main conflicts and feelings of insecurity

The teacher –student relationship in school 2 demonstrated itself to be very similar to school 1, because the same points were highlighted: undisciplined, disinterested, aggressive, etc. Notwithstanding these points showing up, the relationship with the students according to the majority was considered to be good, as demonstrated in the table below, which shows the answers to the questionnaire:

Table 3. teacher-student relationship

Very good
Who respects is respected
Partial involvement
Good- 5 answers
Despite the large wave of violence, I was never disrespected, Always coexisting in harmony
I don't have any problems. Some are sweet, others are the opposite
Good, the students aren't saints, but our relationship is very cool.
Reasonable, undisciplined students, with no interest in the subject matter
Good, there being only the ordinary problems of lack of discipline in isolated cases
Reasonable
The teacher student relationship is respectful with Exchange of ideas, despite the fact that some students are undisciplined
I can communicate well with them, but I perceive that there are professors that are very distant and place a barrier in this relationship

The answers given to the questions arising in the group dynamics presented a very negative view of the students, although, as we can see on the above table, a condition of good relations between teachers and students. We highlight below some of the statements made by some of the teachers attesting to the above:

“Socially unstable students, functionally illiterate and the worst category, the socially aggressive, already leaning towards criminality.”

“I consider that the majority of my students have no commitment to the school activities, they are lax, they don't like studying and they like the school environment even less”

“Students without any future prospects, without limits demotivated”

“The students are revolted and aggressive maybe by the lack of attention from their parents”

“Badly educated students, they don't respect the employees, teachers or colleagues”

We can come to the conclusion that the climate present in the teacher-student relationship is a mixture of resignation and at the same time condescension as they consider that the lack of discipline, rudeness and incivilities are the consequence of the students' social and family situation.

The relationship with the parents also demonstrated a similar condition to that of school 1, with respect to the blaming the families for the type of behavior of the students in the school, evidencing a tense climate and a mixture of fatalism with respect to the concrete situation of the students' life and their behavior in the school. The picture that we reproduce below shows the vision of the teachers with the parents:

Table 4 .Relationship Teachers-Parents

Difficult
Partial absence
When the parents com it is good
God- 5 answers
Inexistent
Unfortunately the parents of the children who have no problems always appear
When I ask the parents to come for a talk, I was always answered.
They are called in when there are problems and for the bimonthly meetings
There are very few parents that seek out the teachers to find out about their children
There is no relationship, they only appear when they are called to solve discipline problems
When I relate, it is good

The great majority talk about the absence of the parents and, as we can observe, how they come when they are called and only to solve problems. During the group dynamics carried out, there was much questioning about the family's responsibility with respect to the students' attitudes. We noticed, however, that the answers written in the questionnaire and the questions in the group dynamics, very little was talked about by the teachers concerning the conflicts with the students' parents and families, contrary to what happened in school 1.

We cannot come to the conclusion that the climate between the school and the parents is positive or negative, what we can conclude is that there is an absence of the parents in the school and this deserves to be studied better.

The issue of insecurity seems to be one of the biggest problem points for the school, constantly pointed out by the teachers. The invasion of the school by elements not part of it was pointed out by the majority of the teachers, as can be seen by the following statements when asked what would be the main conflicts in the school:

“Insecurity of the building, invasion of strangers to the school”

“Invasion of individuals with bad intentions”

“Invasion by students who study in different periods”

“Insecurity, aggressions and disrespect”

“Invasions by people from the community, lack of discipline of the students, physical and verbal aggression among students, lack of direction.”

Synthesizing the different variables that compose the climate and that were studied, we can come to the conclusion that the climate in school 2 is a climate of significant tension, motivated mainly by the difficulty in the relationship with the families and with the community and a certain dose of difficulty of articulation between teachers –teachers and teachers administration.

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Science and geography teachers' conceptions regarding problem-based learning related concepts

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Abstract

Teaching for Problem-Based Learning (PBL) requires big changes in teachers' usual roles. As teachers' conceptions may exert an influence on their own teaching practices, putting into practice a new and demanding teaching approach like PBL may be facilitated by teacher education. This paper presents an analysis of the evolution of 33 Science and Geography teachers' conceptions regarding PBL related concepts due to an in-service course. Results indicate that most teachers overcame their conceptions of problem and started to acknowledge the idea that using problems as a starting point for learning new ideas (as required by PBL) makes sense.

Keywords: Type your keywords here, separated by semicolons ;

1. Theoretical framework

There are several conceptions of Problem-Based Learning (PBL), being some more student-centred and other more teacher-centred (Barrows, 1986; Hmelo-Silver, 2004). This paper assumes a conception of PBL as is a student centred teaching approach that takes problems as starting points for new learning (Lambros 2004). Thus, a problem is a task that requires an answer or a solution (Jonassen, 2004). However, it must be stressed that a problem may have no solution, or it may have one or more solutions. In any case, the problem solver should not be able to anticipate the answer nor the appropriate strategy to get it. Although problems can be used at different phases of a teaching sequence (Leite & Esteves, 2005), PBL requires them to be used at the beginning of the learning sequence, as starting point for new learning. When this is the case, problems can be brought by the students or by the teacher or they can emerge from a scenario (Lambros, 2004) prepared or selected by the teacher in such a way that it elicits questions that have to do with the concepts that teachers are supposed to teach.

Solving a problem requires efforts from the problem solver. Hence, school science problems should be or at least seem real (Azer, 2008; Jonassen, 2004; Lambros, 2004) so that students feel it is worthwhile solving it. Besides, this would promote integration of knowledge (Jonassen, 2004) which is a competence relevant from an everyday point of view. In fact, real problems are multidisciplinary in nature and they require the integrated use of knowledge and skill from several different areas of expertise. If school science problems have this characteristic, then students would both feel more prone to find out a solution for them and develop competences that are relevant for solving problems later on in their private and professional lives (Azer, 2008; Hmelo-Silver, 2004; Savin-Baden & Major, 2004). Besides, if a social constructivist perspective of learning is acknowledged, then students should work in small groups to solve the problems. This would also be important for their future life as professionals have been more and more asked to work cooperatively.

Characteristics of problems and problem-solving that were mentioned so far show that differ significantly from

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exercises, as the latter require rote use of conceptual knowledge and mathematical expressions, have a single solution as well as an only solving strategy (Jonassen, 2004). Although they may enable training some skills that are relevant for solving problems, if exercises are one of the most frequent type of task students are asked to perform (Fortus, Krajcik, Dershimer, Marx, & Mamlok-Naaman, 2005), then they will prevent students from developing competences that are nowadays acknowledged as key components of science education for citizenship.

Teaching for PBL requires big changes in teachers' usual roles. As a matter of fact, instead of being a "knowledge teller" (Leite & Esteves, 2012), teachers have to be knowledge building facilitators and student guides (Azer, 2008; Hmelo-Silver, 2004; Lambros, 2004). However, assuming these new apparent passive roles may make teachers feel uncomfortable; they may feel that they are not doing their job appropriately (Savin-Baden & Major, 2004; Goodnough & Cashion, 2006). Besides, research has shown that teachers do not hold clear conceptions of exercise and problem, as they use the word problem when they are referring to exercises (Freitas, Jiménez & Mellado, 2004) or they do not distinguish exercise from a problem (Sousa & Fávero, 2003; Freitas, Jiménez & Mellado, 2004). As there is some evidence that teachers' conceptions may exert an influence on their own teaching practices (Van Driel & Abell, 2010), putting into practice a new and demanding teaching approach like PBL may be facilitated by teacher education. Thus, this paper aims at analysing how Science and Geography teachers' conceptions regarding Problem-Based Learning related concepts evolve, due to an in-service course.

2. Research Methodology

Participants in the study are 33 Science (27) and Geography (six) in-service teachers, teaching in secondary schools located in the north and centre of Portugal, who volunteered to attend an in-service course on PBL. As it is usual in Portugal, even in science, most of the subjects (28) are female. The majority (26) are graduates (only) and had been in the teaching profession for more than 16 years. This means that they are well established as teachers and therefore they are an appropriate sample to studying teachers' conceptions. However, they may be more motivated towards the issue than their counterparts were.

The course, focusing on "Teaching Science and Geography through PBL", with 25 hours face-to-face work, was recognized by the Portuguese Ministry of Education as an in-service teacher education course qualifying for teacher progression in the career. The course was organized so that teachers could: reflect upon the role of problems and exercises in Science and Geography teaching; characterize Science and Geography teaching oriented towards PBL; develop teaching materials relevant for PBL; develop instruments for students' assessment. Two editions of the course were run by one of the authors of this paper together with a third colleague. Participants' final learning assessment was based on an essay individually done.

Data were collected, before and after the course, by means of a questionnaire. Open questions focusing on the concepts of exercise, problem and problem based learning were included. Data were content analysed based on *a posteriori* defined sets of categories.

3. Results and discussion

Participants in the study were questioned about the relationship between problem and exercise, before and after the course. All of them mentioned that exercise and problem are different. When teachers explained why they are different, several correct ideas were mentioned. However, a few of them did not give an explanation for that, neither before nor after the course. In addition, before the course, teachers tend to mentioned the most common characteristics (A and E) while the most unusual ones were omitted (C) or were mentioned by only one teacher (D). After the course, the percentages of teachers mentioning ideas B and C are higher than they were before. This means that some teachers gained some awareness of two distinctive characteristics of problems, one related to the obstacle it offers to the problem solver and another one related to the possible numbers of solutions.

However, none of these ideas was shown by the majority of teachers that participated in the study.

Table 1. Evolution of teachers' ideas about the relationship between exercise and problem (%)

Problem (P) <i>versus</i> Exercise (E)	Before	After
A - A Problem is cognitively more broad and demanding than an Exercise	30,3	24,2
B - A Problem presents an obstacle to the problem solver; an Exercise does not	18,2	42,4
C - A Problem may have no solution or one or more solutions; an Exercise has one only solution	0,0	24,2
D - A Problem may have several solving strategies; an Exercise has only one	3,0	9,0
E - A Problem serves new knowledge learning and application; an Exercise serves training purposes	37,4	39,4
G - Do not know / No answer	12,1	9,1

All the participants in the study were also asked about what they think that PBL is. Before the course, one third either did not answer or stated that did not know what it is (F). This percentage (the highest one before the course) was reduced to a half after the course, which is an unexpected result as teachers had just finished the course where this concept was focused and materials were prepared.

Table 2. Evolution of teachers' ideas about PBL (%)

Characteristics of a PBL approach	Before	After
A - The problem is the starting point for learning	27,3	39,4
B - Students are at the centre of the teaching and the learning processes	24,2	69,7
C - Students are responsible for their own learning	0,0	60,6
D - The teacher is a learning facilitator	6,1	30,3
E - PBL develops conceptual and procedural knowledge	9,1	15,2
F - Do not know / No answer	33,3	15,2

Before the course no teacher mentioned that "Students are responsible for their own learning" (C), but the percentage on this category increased a lot after the course (60,6%). Other categories in which the number of teachers increased a lot from before to after the course are B (24,2% → 69,7%) and D (6,1% → 30,3%). This increase may mean that participants in the course understood the role and responsibility of the students in a PBL approach and that a few of them also became aware of teachers' role as a learning facilitator. However, taken together, these results suggest that it is easier for teachers to accept the change in students' role than in their own role, and therefore they are consistent with literature reviewed in the first section of this paper. In addition they may suggest that they focused more attention in people roles than in problems role as percentage in category A increased about 10% only. This may also mean that most of them resisted to the idea that problems on a theme or concept can be used before teaching them.

4. Concluding remarks

Results suggest that teachers' conceptions evolved due to the in-service course they attended. However, evolution is not too consistent with regard to the diverse categories used for the purpose of data analysis, being those representing less innovative ideas and/or those that put into question their 'comfortable' authoritative status the less mentioned. Although these results could be anticipated, they may have implications for implementing PBL oriented Science and Geography teaching. An implication of this is that teachers need support from teacher

educators if they are going to put PBL into practice. It should include helping teachers in preparing teaching materials, namely problems and scenarios, and accompanying them when they are working with their students, in order to make sure that they just guide students in their problem-solving tasks, without telling them the problem answers. In fact, this support would help teachers not only to use PBL appropriately but also to develop their pedagogical content knowledge, namely with regard to teaching Science and Geography through PBL.

Acknowledgements

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Security in the internet environment for children with mild intellectual disabilities

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Abstract

The paper introduces the results of research in the field of information and communication technologies in a specific group of students with mild intellectual disabilities. The main objective was to compare the behaviour of students with mild intellectual disabilities, who attend secondary practical schools and students of secondary mainstream schools, in the use of the Internet, in particular with the rules of its safe use.

Keywords: information and communication technologies; internet safety; mild intellectual disabilities

1. Introduction

In recent years, information and communication technologies have become a normal part of our society; hence security in the Internet environment is gaining interest. In connection with the expansion of Internet use, mobile technology and especially the popular social networking sites, bullying or cyber-bullying via the Internet and other potentially dangerous activities have become more common. Therefore, one of the important current objectives of our schools is to teach children how to use the Internet safely (Maněnová, Skutil, 2010; Maněnová, Skutil, Zikl, 2010).

In our research, we focused on one specific group of children - children with mild intellectual disabilities. These children commonly use all the possibilities of the Internet, but due to the characteristics of their disadvantages, they represent a group at greater risk due to a lower ability to forecast the consequences of their behaviour, the worse the ability to analyse a situation, a higher degree of suggestibility, etc. (Beirne-Smith, Patton, Kim, 2006). It is therefore important in schools for pupils to be prepared for the fact that the Internet is not only a good helper and counsellor, but it is also full of pitfalls that need to be guarded against.

The theme of safety when using the internet is included in the curricula for both regular schools and schools that educate children with mild intellectual disabilities. The Framework Educational Programme for Basic Education (hereinafter as FEP BE), and FEP BE – a supplement specifying education of pupils with mild intellectual disabilities, do not contain explicit competences in the field of security when using the Internet, but both documents include exactly the same subject matter generally determined: "principles of safety and

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prevention of health risks associated with long-term use of information technology". Teaching children with mild intellectual disabilities effective and safe use of information technology is obviously more challenging than in the general population, so therefore more time is allocated for the educational area of "Information and Communication Technologies" in the curriculum for children with mild intellectual disabilities.

2. Research objectives and methodology

The main objective of this research was to compare the behaviour of pupils with mild intellectual disabilities who attend practical secondary schools and pupils of secondary mainstream schools, during the use of the Internet, in particular the rules of its safe use. We wanted to determine whether there are differences in awareness between the two groups of pupils about the safe use of the Internet, how they comply with the principles on the Internet and how they protect their personal data. For additional information regarding the two groups of children, we also investigated whether they have a computer with internet access and how many hours they spend using it.

The research sample consisted of 71 pupils of practical secondary schools and 211 pupils of mainstream secondary schools. The age distribution is given in Table 1.

Table 1. Age of the respondents

	mean	Standard deviation	min	max	mode	median
pupils with Mild Intellectual Disability (MID)	14,3	1,08	13	17	14	14
intact pupils	12,9	1,27	11	16	13	13

The higher age of students with mild intellectual disabilities is given by their later onset in primary school because of school attendance delays and frequent repetition of year for this group of pupils. This makes the average age of students in the practical primary school a little higher than in mainstream schools in the same grade.

The data were collected using a questionnaire of our own design in mainstream primary schools and practical primary schools.

3. The research results

The first part of the results presents a comparison of the possibilities to access a computer and the time spent on the PC during a day. We started from the hypothesis:

H01: Students with mild intellectual disabilities will have equal access to the computer as the intact population.

H02: Students with mild intellectual disabilities spend the same time during a day at the computer, as the intact population.

Based on the tests, the first hypothesis wasn't accepted ($\chi^2 = 15.6$; probability = 0.008). We can say that there is a difference in the options for accessing computer between the groups (the results are presented in Figure 1). We assumed the same approach, because in the Czech Republic 85% of households with children under 16 years have a computer and 80% have internet connection (Czech Statistical Office, 2010). It probably

reflected the worse social situation of families of children with mild intellectual disabilities and a partial influence also lies in the lack of ability of the parents to work with information technologies.

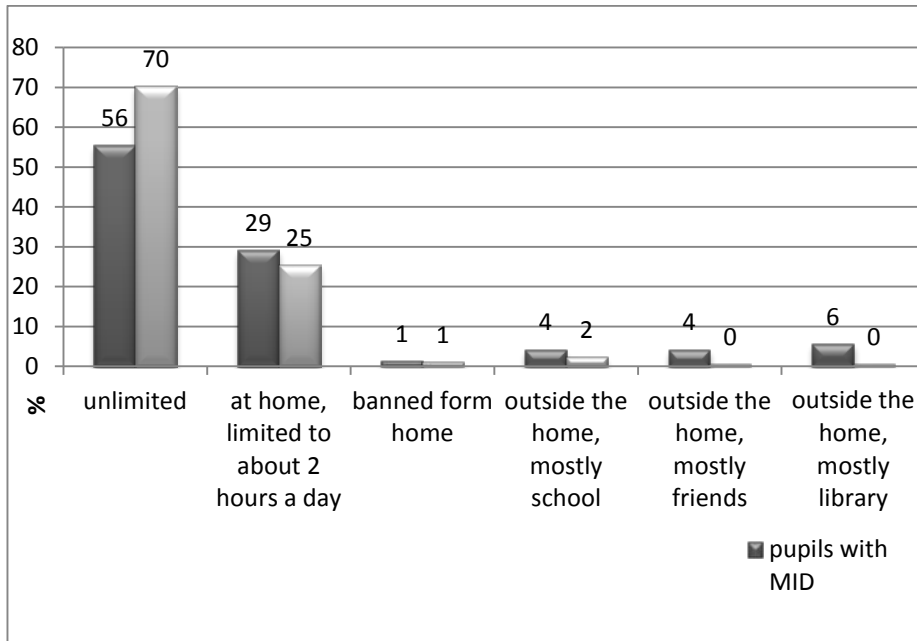


Fig. 1. Access to a computer

The second hypothesis was accepted, the average time spent on computer doesn't differ significantly in the groups of children (according to Figure 2). We used Student's t-test whereas the data didn't clearly show a normal distribution, the non-parametric Mann-Whitney test was also used. The test criteria value was T value = -0.3724, probability = 0.710118. The test criteria value Z of value approximation with correction = 0.7303, probability = 0.465197.

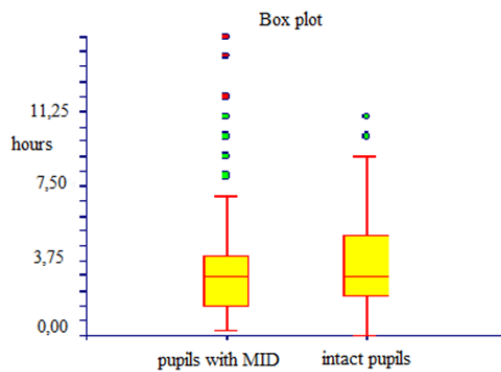


Fig. 2. Number of hours spent on a computer

The next section of the paper publishes some results of the research that focus on Internet safety.

We wanted to find out how the two groups of children handle a password (passwords) that they use on the web. In this issue, we proceeded from the general rules of Internet safety, and we assessed whether students keep their passwords confidential. The responses were positive, because both groups most commonly chose to keep the password secret, a pupil doesn't disclose it to anyone and they sometimes change it. The second most common option was keeping their password a secret, but without change (detailed results in Figure 3). Between the two groups there is no significant statistical difference (chi-square = 1.27, degrees of freedom = 2, probability = 0.529).

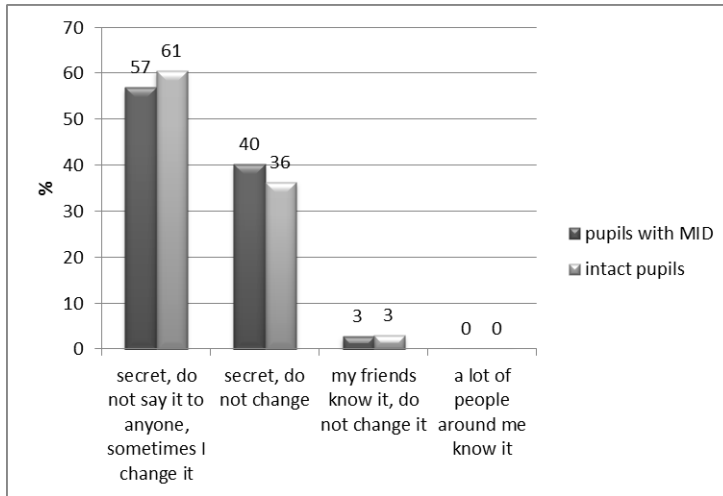


Fig. 3. Dealing with password

In the next part of the research, we focused on how children approach protecting their personal data. First, we were interested in what information they publish about themselves on their web profiles and whether they send some of the data to other people. It turned out that the majority of children from both groups do not send their details (address, phone) over the web to anyone, although it is a bit alarming that about one quarter of children normally and very often send information via a website and basically do not protect it in any way (Figure 4). There was statistically no significant difference between the groups on this issue (chi-square = 2.45, degrees of freedom = 2, probability = 0.294).

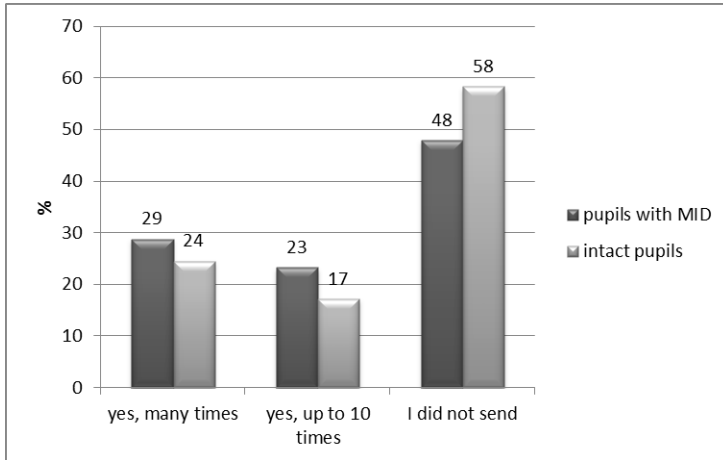


Fig. 4. Provision of personal data

Figure 5 presents what true information children publish on Internet profiles about themselves. Neither here is any significant difference between the two groups of children, although a slight tendency to publish more personal data is apparent in children with mild intellectual disabilities.

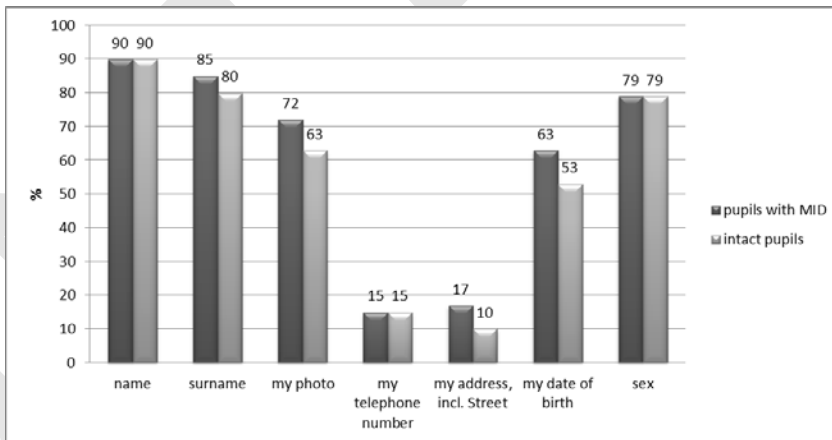


Fig. 5. What true data do they report on the Internet?

Furthermore, we focused on the issue of meeting with a person that are only known to them via the internet. Here, the difference between the two groups of children appeared, but was not statistically significant (P value

0.0935). 75% (pupils with MID) or 62% (intact pupils) clearly reject the possibility of a meeting with a person known only through the Internet. The answer to this question was open and the other respondents (25% and 38%) responded that under certain circumstances, they would meet with a person known only via the internet. The most common condition for meetings for pupils with MID was to know the person otherwise than through the Internet. Smaller percentage also represented the opportunity to meet with an unknown girl, which some pupils with MID does not perceive as dangerous and sometimes also meeting with an unknown person in the presence of another friend. Intact students also reported knowing a person via video and other forms of communication as a possible condition for meeting.

4. Conclusion

It is gratifying that in the field of security on the web, there is not only compliance in curricula for children from both surveyed groups, but in fact do not differ too much, as confirmed by our research. We noticed a slightly higher incidence of risky behaviour in children with MID (e.g. in disclosure of personal data), but not statistically significant.

Overall, however, we feel that practical primary school students do not significantly lag behind mainstream primary school pupils and the vast majority of students with mild intellectual disabilities are no different working on the Internet and in compliance with the principles of safe use from their peers in mainstream schools.

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Self-regulation of adolescents. Gender specifications.

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Abstract

In our paper, we focused on the gender specifications of adolescents' self-regulation. Our attention was concerned on research in which we worked with two research methods: Scale of Masculinity and Femininity and SPARO. Our research was realised on the sample of 150 participants who were adolescents – students of the secondary schools and university. We hypothesized that there the differences exist in self-regulation of the adolescents in the relation with their gender role. We can support the hypothesis we designated despite of that we did not found the differences among the gender types in all variables.

Keywords: gender; masculinity; femininity; androgyny; indifference; self-regulation; SMF; SPARO

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1. Self-regulation

The issue of self-regulation in relation to volition processes is as old as the history of explicitly defined psychology. We already encounter these terms in works of James, Wundt or Freud. Even though this term has already a long existence, only in 20th century we come in Psychology to the idea that self-regulation processes and their analysis should be the subject of scientific analysis and heading of this science. (e.g. Karoly, 1993).

Brichcín (1999) states that we use many terms to identify self-regulation and these terms have content links created between them. We use terms such as self-guidance, self-management, self-control, volition, will, etc. This means that in this particular area still exists uncertainty when it comes to terminology.

Carver and Scheier (1998) state, that the term self-regulation is generally related to human efforts to change their own thoughts, feelings and behaviour towards higher aims. If we therefore speak about self-regulation, the centre of our attention is a human as an active entity and a being which can decide independently. At the same time, it actively adapts to life conditions and does not stay in the position of helpless observer of events (Baumeister, 2005).

Cameron and Leventhal (2003) identified two basic features of self-regulation. The first one is related to dynamic motivation system of setting goals, the selection and application of strategies to achieve these goals, the process for evaluation and revision of goals and strategies. The second feature is related to the management of emotional answers which the authors see as crucial elements of one's motivational system. These two features could be called cognitive-motivational and emotional-motivational.

However, if we return to the definition of self-regulation (e.g. already mentioned Carver & Scheier, 1998, or Zeidner, Boakaerts & Pintrich, 2000) and understand it as a systematic process which involves conscious effort to influence thoughts, feelings and behaviour to achieve goals in the context of change of environment, then we can identify another feature of self-regulation. We could call it mobilizing. It would be related to the personal variable, which we call in Psychology high frustration tolerance.

There are various self-regulation theories, defining structural components and self-regulation processes. To the most widely known belongs the theory of Bandura (1977), Carver and Scheier (1981), Locke and Latham (1984), Kanfer and Ackerman (1989), Frese and Zapf (1994), Zeidner, Boakaerts and Pintrich (2000), Zimmerman (2000). They vary in emphasis they put on regulation processes and regulation evaluations (Sitzmann & Ely, 2011). They differ in planning processes, monitoring, metacognition, attention, learning, time management, structuration of environment, help seeking, emotional control and evaluation in the form of self-evaluation attributes and self-efficiency. We can however also identify common features. All theories have a common fixation to goals, persistence and effort. This means that they work with such attributes as setting standard, or formulation of expectation (e.g. I want to pass the next exam with an A), allocation of resources in spite of boredom or mistakes (e.g. this textbook is boring but I will persist and learn it), time duration of activity (e.g. time spent by learning boring content).

In Slovak conditions were also created theories[†] where the main interest lies in the problem of self-regulation. These are the theories of Komárik (2007, 2009), Kováč (2007) or Mikšík (2004).

Komárik (2007, 2009) within his theory understands the human as a system consisting of six self-regulation systems, which are cells, viscera (inner organs), movement, reproduction system (family), culture and personality. These systems are considered as hierarchically (or more exactly transcendently) arranged. Lower systems represent potential and capacities for higher systems. Higher systems are the regulators of lower systems. They change their structure so that it complies with their needs. Komárik (2006) speaks about conception in which there is place for outer (family, culture) and inner sources of self-control, or self-regulation (cells, viscera, movement, personality). The highest control system is the personality. Author doesn't reject outer sources of self-control and he claims that overcoming individuality and creating over-individual communities is natural to

[†] In Slovak condition, there were also realized the researches within this problem. At our university, the best known are the researches of Verešová (2000), Verešová (2007a, 2007b) which were also the impulses to recall the interest of this problem.

humans and brings with it advantages, which are decrease of costs (increase of efficiency) and expanding possibilities.

Kováč (2003, 2007) defines regulation as maintain and modification of stability of a certain system based on feedback with the influence of regulators. He understands psychical regulation or psychical self-reflection of oneself and the world as a process whose functions are following:

- it enables the organism to better adapt to the surroundings (compared to genetically programmed behaviour for survival) – *assimilation*,
- it enables the organism to create more favourable conditions for life (compared to changing environment) – *adaptation*,
- to change the system in which the psychic reality works, that is to change itself – *auto-regulation*.

The most specific approach to self-regulation can be found at Mikšík (2004). His concept of structural and content system of self-regulation is presented in chapter 3.

2. Gender differences in self-regulation

Gender differences in self-regulation were researched in many researches. We pick from them some important results. Meece, Glienke and Burg (2006) in their researches indirectly point to the fact that boys / men have higher cognitive flexibility which shows in higher interest and higher success in science and mathematics. Pintrish and Zusho (2007) have shown that girls / women compared to boys / men have lower self-evaluation when evaluating own scientific abilities, which shows in lower interest and distorted image of oneself. Pajares and Valiante (2001) confirmed that boys / men and girls / women differ in motivation beliefs and in regulation of learning. Velayutham, Alridge and Fraser (2012) have proven that defining the goal, value of task and self-efficacy are important precursors of self-regulation and specifically bound to gender, or sex. Differences between boys / men and girls / women in self-enhancement were confirmed by the researches by Beyer (2002), Baumaister (1989) and Kurman (2004).

All these results lead us to the formulation of hypothesis about gender differences in self-regulation (end of chapter 3). This assumption is tested in a group of adolescents which are in this time sensitive to questions of identity, whose inherent part are also gender expectations and their fulfillment.

3. Method

The sample consisted of 150 participants whose average age was 18.03. They were the students of the secondary schools and students of the university. The structure of research sample according to gender types is inscribed in Table 1.

Table 1. Structure of the research sample according to sex and gender

			masculinity	femininity	androgyny	indifference	total
sex	women	N	6	35	38	11	90
		%	4.00%	23.30%	25.30%	7.30%	60.00%
	men	N	23	4	26	7	60
		%	15.30%	2.70%	17.30%	4.70%	40.00%
total		N	29	39	64	18	150
		%	19.30%	26.00%	42.70%	12.00%	100.00%

The process of the gender types creation is described in chapter 5. Despite of the women's dominance in the research group, we found that the largest gender type is group of androgynous adolescents and that the clear and expected gender types (feminine women and masculine men) had the count 58 (35 women and 23 men) what is approximately 39% of the research sample

We used the following research methods (in alphabetical order):

Scale of Masculinity and Femininity (SMF)

author: Kusá

The questionnaire consists of 45 items which are distributed into three scale: masculinity, femininity and social desirableness. The items regularly alternate. The participants use the 6-point scale to judge the items. We used only the scale of masculinity and femininity in our analysis.

SPARO

author: Mikšík

This personality inventory consists of 300 items. The task of the participants is to express their agreement or disagreement with these items.

The basis for creating the SPARO method was the IHAVEZ method (the author is also Mikšík, editor's note), which was developed as a diagnostic tool of personal variables, on which depends the quality of interactive behaviour of an individual in acute life situations, the nature and dynamics of individual's coping with situation variables in effect. By researching the items and scales of IHAVEZ questionnaire, four basic mutually independent factors were extracted, which could be perceived as internally specific structured complex of cognitive, emotional, regulatory and adjusting components which connect into individual profile of psychological personality variability, as an integrated complex of inherent and adopted strategies of dynamic coping with various variants of situation complexes, readiness to certain ways and forms of interactions with life reality.

Mikšík (2009) states that SPARO serves to diagnose the structure and dynamics of basal auto-regulation and integration of inner and outer personality activities, personality's psychical toughness. The author understands the basal psychical integration of personality as an integrated complex of inherent and adopted strategies, which help the individual to cope with various variants of situation complexes. According to the author, this means subjectively characteristic quality of readiness to certain form or ways of interactions with the environment. From this integration depends, which circumstances, life conditions, contexts or aspirations are optimal for human and for which of them he is not enough psychically disposed.

Mikšík (2004) defines following most general integrity indicators:

- PS = general psychical spontaneity, excitability, (inner) activation, behaviourally expressed as a tendency to incline towards dynamic interactions, related to intensive psychical activation, or as high situation excitability (arousal);
- MD = motoric (interactive, outer) dynamics and reactivity. By high values it is expressed in looking for changes in smaller regulatory barriers and high emotional and adjustable rigidity: by negative values, it is expressed by the tendency (situation and also active) calmness by high emotional excitability, regulation to adjustability.

These two given indicators then reflect in a specific way into key, mutually independent components of psychical interactive variability of a personality, which are:

- CV = cognitive variability, is a component related to cognitive functions. A pronounced variability is characteristic by the tendency to change, high quantity, dynamics and variability of impulses by their complex recourse and processing. Invariability on the other hand is characterized in individual being more stable when interacting with the environment, also being cognitively poorer, so he has lower cognitive capacity for dynamic recourse and processing of situation variables.

- EV = emotional variability, which is related to experiencing interactions with the environment and situation changes and records dynamics of emotions and its influence in the cognitive and behavioural area. Positive pole is represented by high excitability, the tendency to experience situation tension and euphoria. Negative pole expresses emotional stability, decreased emotions.
- RV = regulation variability, which is related to regulatory or controlling functions of the behavioural modality, auto-regulation quality, resolution and activity control. High variability means low self-control, low consideration of possible consequences of interaction activities, decreased self-regulation of behaviour. For invariability is typical systematic affiliation of future possible effects into decision making process, into activity, behaviour system activity (we speak about anticipation regulation of behavior and activity).
- AV = adjusting variability, where by higher adjusting variability is typical dynamics of actuation of situation variables and also adjusting activities. By invariability we speak about adjusting rigidity, when a person show tendency to inertly stick to own approaches, activities, behaviour schemes (tendency not to adjust oneself, but adjust to oneself).

Mikšík (2004) institutes also other personal attributes, which serve to better view the individual specifically basal auto-regulation of a personality. These attributes are then integrated in the questionnaire into more general dimensions. These dimensions are (we define them together with brief characteristic of high score of individual scales):

Dimension N - normality attributes:

- scale of egocentrism and suspicion (ES): high score shows the tendency to hypochondria and chasing delusion;
- scale of psychical instability/stability (LS): high score shows emotional stability and prudence, psychical balance;
- scale of extremity (EX): high score shows deviation from population norm;

Dimension S – optimal level of stimulation:

- scale sensory impression (SI): high score shows searching intensive various sensual experience, dynamic forms and contents;
- scale intensity of inner psychic processes (IP): high score shows looking for intensive emotional experience for the pleasure itself;
- scale movement disconcertion (MD): high score shows the tendency to rivalry, danger and adventure;
- scale of dynamic interaction with the environment (DI): high score shows the interest in change, unexpected, unusual, the tendency to new things and to overcome boredom;
- scale of social disinhibition (SDh): high score shows damping, momentum and in extreme cases even asocial behaviour;
- scale of stimulation level (SL): score shows which dynamics in outer environment suits a person and which is considered to be a burden;

Dimension Ri – individual tendency to take risks:

- scale of aspirations (AS): high score shows a high aspiration level, setting high goals and prevailing success experience;
- scale of anticipation (AT): high score shows enormous tendency of evading activities, connected with danger of failure and losses;
- scale of tendency to rely on luck (TL): high score shows the tendency of risky decisions, in which is assumed little hope of success, or loss;
- scale social exhibitionism (SE): high score shows the tendency to show off, be admired for something that the person can do compared to others;
- scale of tendency to risk (TR): score shows individual specific tendency of a person to take risks;

Dimension I – effective personality integration:

- scale of anxiety (AN): high score shows the tendency to experience anticipation anxiety;
- scale of emotionalism (EM): high score shows high intensity of experience, high situation sensitivity, speed and dynamics of this experiences;
- scale capacity of understanding (CU): high score shows the tendency to behave rationally even in acute situations;
- scale of resistivity to disturbing impulses (RD): high score shows high resistivity to unfavourable conditions and will qualities;
- scale of personality integration (PI): score shows individual profile of relation between rational, experience and will qualities;

Dimension Re – interpersonal relations:

- scale of cut-off and contact (CC): high score shows easy relations creation, in extreme cases even extravagance and promiscuity;
- scale of benevolence and tolerance (BT): high score shows good intentions, respecting the rights of others, trust, in extreme cases even indulgence of socially disproportionate behaviour;
- scale of conformity (CN): high score shows symptoms of extreme submission to collectivism;
- scale of tendency to independence (TI): high score shows the preference of personal freedom, need to rely on oneself alone, don't care about the others and to be independent;

Dimension C – correction, regulation of interactions:

- scale rigidity versus flexibility (RF): high score shows social adaptation, suggestiveness, compliance;
- scale frivolity versus responsibility (FR): high score shows self-control, concentration, organization, perspective;
- scale abandonment versus endurance (AE): high score shows the tendency to caution, conservatism, modesty;
- scale frustration versus meaningfulness (FM): high score shows a person with fundamental and clearly defined approach to regulation of own activities;
- scale correcting versus impulsiveness (CI): high score shows uncontrolled, impulsive behaviour;

Dimension A – self-achievement:

- scale suppression versus high confidence (SC): high score shows the confidence of oneself, handling the situation and effective behaviour;
- scale distressfulness versus sanguineness (DS): high score shows optimism, life enthusiasm, tranquillity, satisfaction;
- scale experience versus reaction approach (ER): high score shows orientation to active feedback, acts;
- scale furtiveness versus enforcement (FE): high score shows emphasis of own importance, ambition, personal prestige;
- scale feminine versus masculine type of reaction (FeM): high score shows manifested masculinity.

We hypothesize that there exist differences in self-regulation of the adolescents in the relation to their gender role.

4. Results

Before we came to the statistical analysis, we had to divide the research task into gender types. We proceeded analogically, the same way as by our previous research (Čerešník, 2006), meaning we set a central value of masculinity and femininity. We therefore utilized the formula:

$$(\max M - \min M)/2 + \min M, \text{ resp. } (\max F - \min F)/2 + \min F,$$

where $\max M$, or $\max F$ represents maximum potentially measured value and $\min M$, or $\min F$ represent minimum potentially measured value in masculinity or femininity scale (using SMF). In both cases the minimum scale value is 15 points and maximum value is 90 points. Therefore the central value is 52.5. If we take that masculinity and femininity are the variables present in every personality and that they are orthogonally ordered (Čerešník, 2006) and they intersect in the central value 52.5, then we can get four gender types with the combination of high and low values of masculinity and femininity:

- high masculinity – low femininity = masculine type,
- low masculinity – high femininity = feminine type,
- high masculinity – high femininity = androgyny type,
- low masculinity – low femininity = indifferent type.

We worked with these types also during statistical analysis. We assumed that sex and gender role can't always be in concordance, that means that a female for example don't have to be always feminine or gender-defined in terms of femininity or masculinity dominance (our research sample distribution based on gender and sex points this out).

To test our hypothesis we used Statistical Program for Social Science 16.0. We used Kruskal-Wallis test to test differences among research groups. As a critical statistical value which indicates the statistical significance, we appointed the standard value of $p \leq 0.05$.

The results are presented in Table 2. All significant differences are emphasized by Bold.

Table 2. Self-regulation in the relation with gender types

SPARO		maskulinity			femininity			androgyny			indifference			H	df	p
		N	AM	SD	N	AM	SD	N	AM	SD	N	AM	SD			
Factors	PS	29	6.62	2.73	39	6.67	3.2	64	6.52	2.66	18	6.33	3.74	0.312	3	0.958
	MD	29	7.62	2.71	39	4.95	2.54	64	6.36	2.31	18	6.22	2.39	15.325	3	0.002
Components	CV	29	9.93	3.5	39	9.97	3.52	64	10.75	3	18	7.89	4.95	5.958	3	0.114
	EV	29	7.62	3.01	39	11.87	3.93	64	9.91	4.13	18	11.44	3.42	19.295	3	<0.001
	RV	29	11.62	3.7	39	10.13	3.81	64	9.58	3.57	18	9.94	4.28	6.164	3	0.104
	AV	29	12.41	3.74	39	13.67	2.68	64	13.23	3.12	18	11.22	4.14	5.395	3	0.145
Dimension N	ES	29	8.97	2.68	39	8.18	2.92	64	8.22	2.68	18	7.5	2.92	2.541	3	0.468
	LS	29	10.66	3.12	39	7	3.55	64	8.78	3.67	18	6.94	3.35	19.066	3	<0.001
	EX	29	6.52	3.08	39	5.54	3.17	64	6.12	3.09	18	7.61	3.38	6.234	3	0.101
Dimension S	SI	29	8.03	3.03	39	8.38	3.06	64	8.64	2.8	18	7.5	3.75	2.272	3	0.518
	IP	29	9.55	3.51	39	9.9	3.35	64	9.8	3.5	18	9.11	3.77	0.706	3	0.872
	MD	29	11.17	2.84	39	8.33	3.76	64	9	3.34	18	9	4.19	11.026	3	0.012

	DI	29	10.34	2.78	39	8.21	2.98	64	8.83	3.38	18	9.39	3.15	8.452	3	0.038
	SDh	29	11.41	3.38	39	9.08	4.09	64	9.28	3.06	18	7.67	4.02	13.459	3	0.004
	SL	29	10.41	3.83	39	7.67	4.64	64	8.72	4.28	18	7.94	5.62	7.136	3	0.068
Dimension Ri	AS	29	10.69	3.15	39	9.13	2.85	64	10.02	2.71	18	9.78	4.52	3.7	3	0.296
	AT	29	7.76	2.13	39	8.38	2.73	64	9.09	2.73	18	9	2.59	7.254	3	0.064
	TL	29	10.83	2.99	39	8.9	3.55	64	9.48	3.95	18	8.28	4.74	4.898	3	0.179
	SE	29	11.28	3.32	39	10.26	4.13	64	10.45	2.84	18	10.06	5.27	1.458	3	0.692
	TR	29	7.34	2.51	39	6.13	3.17	64	6.45	2.61	18	5.28	3.39	6.227	3	0.101
Dimension I	AN	29	8.79	3.54	39	12.31	3.73	64	10.58	4.28	18	11.22	4.12	12.38	3	0.006
	EM	29	9.48	2.96	39	10.85	4.09	64	10.05	3.74	18	11	3.18	2.646	3	0.45
	CU	29	11.93	3.43	39	8.87	3.36	64	10.59	3.14	18	7.72	2.32	24.162	3	<0.001
	RD	29	12.45	3.36	39	11.51	2.81	64	12.83	3.48	18	9.67	3.94	10.035	3	0.018
	PI	29	12.55	3.18	39	8.92	3.96	64	11.08	3.51	18	8.78	3.02	19.016	3	<0.001
Dimension Re	CC	29	10	3.89	39	7.26	4.16	64	8.59	3.84	18	7.28	5.36	9.994	3	0.019
	BT	29	9.1	1.72	39	8.56	1.6	64	8.39	1.89	18	7.56	1.85	7.76	3	0.051
	CN	29	9.41	2.65	39	11.54	2.52	64	10.58	3.15	18	10.28	2.87	8.658	3	0.034
	TI	29	12.59	2.69	39	11.08	2.56	64	11.14	2.54	18	10.22	3.12	7.066	3	0.07
Dimension C	RF	29	10.48	3.04	39	11.18	2.42	64	10.67	2.97	18	9.56	2.77	4.418	3	0.22
	FR	29	8.41	3.05	39	9.62	3.66	64	10.58	3.6	18	9.33	4.16	7.686	3	0.053
	AE	29	8.52	3.07	39	10.92	3.89	64	10.48	3.69	18	11	3.63	8.399	3	0.038
	FM	29	7.34	2.33	39	8.03	2.61	64	8.44	2.47	18	7.22	2.46	5.621	3	0.132
	CI	29	5.86	2.48	39	6.85	2.06	64	6.56	2.14	18	6.28	2.35	2.337	3	0.506
Dimension A	SC	29	12.97	2.98	39	10.08	3.16	64	11.22	3.5	18	9.72	2.42	15.317	3	0.002
	DS	29	9.07	2	39	7.33	2.31	64	8.28	2.46	18	6.06	1.8	20.609	3	<0.001
	ER	29	10.28	2.9	39	7.69	3.29	64	9.31	3.46	18	8.17	3.68	11.692	3	0.009
	FE	29	8.79	2.53	39	8.03	2.53	64	8.78	2.49	18	6.67	3.25	7.299	3	0.063
	FeM	29	11.17	3.08	39	8.13	2.89	64	9.56	3.31	18	7.33	3.24	19.257	3	<0.001

legend to Table 2.: N = count; AM = average mean; SD = standard deviation; H = value of Kruskal-Wallis test; df = degrees of freedom, p = significance; abbreviations of the components, factors and dimension of SPARO are defined in chapter 3.

We found the difference among gender types in:

Components:

- emotional variability (EV) (H = 19.295; $p < 0.001$), the highest score was identified in femininity (AM = 11.87), the lowest score was identified in masculinity (AM = 7.62);

Factors:

- motoric dynamics (MD) (H = 15.325; $p = 0.002$), the highest score was identified in masculinity (AM = 7.62), the lowest score was identified in femininity (AM = 4.95);

Dimension of normality attributes

- psychic lability / stability (LS) (H = 19.066; $p < 0.001$), the highest score was identified in masculinity (AM = 10.66), the lowest score was identified in indifference (AM = 6.94);

Dimension of optimal stimulation level

- motoric disconcertion (MD) (H = 11.026; $p = 0.012$), the highest score was identified in masculinity (AM = 11.17), the lowest score was identified in femininity (AM = 8.33);
- dynamics interactions with the environment (DI), (H = 8.452; $p = 0.038$) the highest score was identified in masculinity (AM = 10.34), the lowest score was identified in femininity (AM = 8.21);
- social disinhibition (SDh) (H = 13.459; $p = 0.004$), the highest score was identified in masculinity (AM = 11.41), the lowest score was identified in indifference (AM = 7.67);

Dimension of effective personality integration

- anxiety (AN) (H = 12.380; $p = 0.006$), the highest score was identified in femininity (AM = 12.31), the lowest score was identified in masculinity (AM = 8.79);
- capacity of understanding (CU) (H = 24.162; $p < 0.001$), the highest score was identified in masculinity (AM = 11.93), the lowest score was identified in indifference (AM = 7.72);
- resistivity to disturbing impulses (RD) (H = 10.035; $p = 0.018$), the highest score was identified in androgyny (AM = 12.83), the lowest score was identified in indifference (AM = 9.67);
- personality integration (PI) (H = 19.016; $p < 0.001$), the highest score was identified in masculinity (AM = 12.55), the lowest score was identified in indifference (AM = 8.78);

Dimension of interpersonal relations

- cut-off and contact (CC) (H = 9.994; $p = 0.019$), the highest score was identified in masculinity (AM = 10.00), the lowest score was identified in femininity (AM = 7.26);
- conformity (CN) (H = 8.658; $p = 0.034$), the highest score was identified in femininity (AM = 11.54), the lowest score was identified in masculinity (AM = 9.41);

Dimension of correction

- abandonment versus endurance (AE) (H = 8.399; $p = 0.034$), the highest score was identified in indifference (AM = 11.00), the lowest score was identified in masculinity (AM = 8.52);

Dimension of self-achievement

- suppression versus high confidence (SC) ($H = 15.317$; $p = 0.002$), the highest score was identified in masculinity ($AM = 12.97$), the lowest score was identified in indifference ($AM = 9.72$);
- distressfulness versus sanguineness (DS) ($H = 20.609$; $p < 0.001$), the highest score was identified in masculinity ($AM = 9.07$), the lowest score was identified in indifference ($AM = 6.06$);
- experience versus reaction (ER) ($H = 11.692$; $p = 0.009$), the highest score was identified in masculinity ($AM = 10.28$), the lowest score was identified in femininity ($AM = 7.69$);
- feminine versus masculine interaction (FeM) ($H = 19.257$; $p < 0.001$), the highest score was identified in masculinity ($AM = 11.17$), the lowest score was identified in indifference ($AM = 7.33$);

We allege that we can support the hypothesis we designated despite of that we did not found the differences among the gender types in all variables.

5. Discussion

Based on gained findings, we created profiles of gender types. As a type with the lowest number of describing characteristics we identified androgyny type (high score of masculinity and also femininity), which in our research sample has high score in scale of resistivity to disturbing impulses (RD). This means that androgyny people are distinguished by developed will attributes, high level of self-control and regulation of own behaviour.

A very specific type is also indifferent type (low score of masculinity and also femininity) where we recorded high score only in the scale abandonment versus endurance (AE). This shows the tendency to carefulness, conservatism, modesty. On the contrary, we recorded low score in various scales (chapter 4). Therefore we assume that indifferent type is distinguished by (1) emotional balance, choiceness, which is however lost in critical situations and it is substituted by irrational ways of reactions and loss of self-control, (2) respect of social norms, (3) low integration of personality connected with low self-confidence and doubting own value, pessimism, even depressive experiencing. A surprising finding is low score in scale of feminine and masculine reactions (FeM) where indifferent types achieve lower score than feminine types.

Feminine type (low masculinity and high femininity score) is distinguished by emotional excitability, tendency to experiencing tension, anxiety and adaptation to pressure of social environment, with the goal to prevent potential conflicts and misunderstandings. Emotional experiences represent real and also potential challenges to anticipations of impacts and consequences, without the need of rational evaluation of the situation. This type is also characteristic by the tendency to search for calm, stable and known environment (as a compensation of high emotions) in which there is no danger and necessity of fulfilling high expectations (aspirations, needs, interests), where the relationships are stable and the stereotype represents security. Establishing and keeping contacts is more directed towards satisfaction in rigidity and stable behaviour patterns than towards longing for new and exciting.

Masculine type (high score of masculinity and low score of femininity) is a type with the highest number of characteristics (with regards to highest or lowest achieved score). It is identified by emotional stability without fluctuations and exaggerated expressions, without anxiety experiencing (not even in critical situations), low focus on expectations of environment and focus on oneself. This type is specific by its readiness to act, actively decide and solve created situations. It looks for changes, it has no barriers, and it fights against boredom and steadiness. These characteristic features show also when establishing new relationships and can also show themselves in exhibition, extravagance, even promiscuity. Conventions are not regulators of their behaviour. Their personality is integrated. People of this type are perceived as self-confident, they trust their powers and abilities to deal with different life situations. They are optimistic, full of energy, tranquillity and satisfaction.

The results of our research are in accordance with actual knowledge of specifications of behaviour regulations. Gender stereotypes last, even though the social pressure for production of gender-specific behaviour (slightly) decreases.

We identified all four types with various self-regulatory profiles. Androgyny type is specific by high behaviour regulation. Low number of most typical features can be caused by close relation with masculine and feminine type (and similar score). Indifferent type is specific by indefiniteness, uncertainty, which has shown itself also in self-regulatory profile. Feminine type is characteristic by emotionality and emphasis on stability. Masculine type is specific by rationality, focus on self and tendency to change.

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Self-regulation based learning strategies and self-efficacy perceptions as predictors of male and female students' mathematics achievement

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Abstract

This study aimed to determine whether mathematics achievement can be explained in terms of self regulation based learning strategies (metacognitive self regulation, regulation of time and study environment, effort management, help seeking) and self efficacy perceptions, and whether these differ between the two genders. The sample consisted of 473 (144 girls and 329 boys) freshmen at Yıldız Technical University who were attending the course "Mathematics I". "Motivated Strategies for Learning Questionnaire" developed by Pintrich et al. and students' examination results were used to collect data for the correlational study. The findings indicated that metacognitive self-regulation, regulation of time and study environment, help seeking, and self-efficacy perceptions were significant factors in explaining mathematics achievement while effort regulation was not. Further, it was concluded that there was a difference between the two genders as to the use and benefits of these strategies.

Keywords: Self regulation based learning strategies, self efficacy perception, gender and mathematics achievement.

1. Introduction

The need for regulating one's own learning has emerged due to the value placed on education and it has underlined self-regulated learning. Research into the issue has shown that low-achieving students have a poor perception of their self-efficacy (Schunk, 1991; Zimmerman, Bandura and Martinez-Pons, 1992; Pajares and Kranzler, 1995; Pajares, 1996; Bandura, 1997; Chye, Walker and Smith, 1997; Andrew and Vialle, 1998; Lopez, 1998; Pajares and Graham, 1999) and that they use fewer learning strategies (Paterson, 1996; Zimmerman and Risemberg, 1997; Songg Youn, 2001; Mc Whaw and Abhami, 2001; Vandergricht, 2002; Chularut and De Backer, 2004).

Today, the impact of self-regulation on academic achievement in various disciplines has become a popular research area. Mathematics is one such discipline. Malpass, O'neil, Harold and Hocevar (1999) found in a study conducted on students good at mathematics that there was a strong relationship between mathematics achievement and self-regulation, goal management and perceptions of self-efficacy. This study aims to identify how the mathematics achievement of university students is affected by self regulation skills (metacognitive self-

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regulation, regulation of time and study environment, effort management, help seeking strategies) and self-efficacy perceptions.

1.1. Self-Regulated Learning

An important concept in socio-cognitive learning theory, self-regulation relates to the use of processes such as thinking, taking action, behaving and engaging in purposeful activities (Zimmerman, 1989). According to a different definition, self-regulation is a process whereby students actively manage their cognition, motivation and behavior after passing through certain self-regulatory processes (Hofer, Yu and Pintrich 1998). Elsewhere, self-regulation has been defined as the process of setting realistic goals, strategizing to achieve these goals, implementing the strategies, and self evaluating oneself (Bandura, 1994; Zimmerman and Risemberg 1997). Based on these definitions, it can be stated that self-regulated learning entails the regulation of an individual's self-produced emotions, thoughts and behaviors with the aim of achieving an aim.

1.2. Metacognitive Self-Regulation

The concept of metacognition was first defined by Brown (1975) and Flavell (1976). They defined it as the knowledge of individuals about their own cognitive processes and the strategies they use to control these processes (In. Flavell, 1987; Baird and White, 1996). Metacognition involves knowledge about cognition and how individuals use this knowledge to regulate their cognition (Hofer, Yu and Pintrich 1998; Schraw, 2001). Research studies have shown that there is a strong relationship between the use of metacognitive strategies and academic achievement (Carr and Jessup 1997; Maqsud, 1997; Desoete, 2001).

1.3. Time and Study Environment

The regulation of time and study environment helps students pursue their academic studies productively (Zimmerman, 1998). Time management strategy entails the processes of planning, implementing the plan and self evaluation with the aim of using time effectively. Previous studies have shown that students who use time management strategy efficiently have better academic achievement (Zimmerman, Greenberg and Weinstein 1994; Britton and Tessor, 1991).

The regulation of study environment strategy involves the regulation of a student's study environment in a way that will help the achievement of aims. Zimmerman and Martinez-Pons (1989b) found in a study that students with self-regulation skills arranged their physical environment according to their own needs and their academic achievement was high.

1.4. Effort Regulation

Effort regulation strategy entails the use of an individual's effort for achievement effectively. In other words, effort regulation is the ability to deal with failure and building resiliency to setbacks (Chen, 2002). Using effort regulation strategy enables students to focus their attention on the task at hand, and control their effort to do the task by ignoring outside stimulants. Pintrich et. al. (1991) define individuals with effort regulation strategy as those who can perform tasks as they have planned. Research shows that effort regulation was a strong predictor of academic achievement (Doljonac, 1994).

1.5. Help Seeking

This strategy involves the efforts of individuals to secure assistance from others. Help seeking is considered to be an important element of social learning. Students who study in a self-regulated learning environment can choose people who can assist them when necessary and receive the help needed. This help provider may be a peer or a teacher (Hofer et.al., 1998). Previous research has shown that success-oriented and active students who adopted specialization attitude sought help when needed (Ames and Lau, 1982; Karabenich and Knapp, 1991 in Chen, 2002).

1.6. *Self-Efficacy Perception*

Self-efficacy perception has an important role in the development of students' self-regulation skills. Self-efficacy is people's beliefs about their capabilities to perform a task successfully (Pajares, 2002a).

A must for achievement, self-regulation is affected by self-efficacy (Zimmerman et.al., 1992). Students with self-regulation primarily need a high level of self-efficacy (Schunk and Ertmer, 2000). Research has shown that students with high levels of self-efficacy perception use effective self-regulation strategies and display high levels of academic achievement (Pajares, 2002b; Malpass, Neil and Hocevar 1999; Zimmerman and Bandura, 1994; Schunk and Swartz, 1993; Marsh, 1990; Pintrich and De Groot 1990; Zimmerman and Martinez-Ponsb, 1990; Helmke, 1989; Schunk, 1989).

1.7. *Gender*

Gender roles emerge according to the culture of societies and it is important to understand their effects on individuals' learning-related skills. Relevant studies have shown that motivational factors based on self-regulation and strategy use both differ according to gender (Zimmerman and Martinez-Pons, 1990; Qutami and Abu-Jaber, 1997; Wolters and Pintrich, 1998; Peklaj and Pecjak, 2002; Ader, 2004). As gender perceptions are different in each society, the present study also aims to identify whether the effects of self-regulation strategies and self-efficacy perceptions on the achievement of Turkish students varies between the two genders.

1.8. *Current Study*

The aim of the current study is to examine with respect to gender the mathematics achievement prediction of self-regulation based learning strategies (metacognitive self-regulation, time and study environment regulation, effort regulation, help-seeking) and self-efficacy perception scores.

The study has been conducted on university students because, as seen from a general cognitive skills aspect, they have more advanced self-regulation strategies and beliefs about learning when compared to lower level students (Pintrich and De Groot 1990; Wigfield, Eccles and Pintrich, 1996 cited in Zimmerman, 1998).

The self-regulation skills of students depend on the subject that they are studying. This study aims to explain student achievement in the course Mathematics I attended by freshmen engineering and architecture students. This specific course was chosen as it is a prerequisite for engineering programs and mathematics achievement is generally low in Turkey (Pisa study). Additionally, gender was also taken as a variable as individuals' learning skills may be affected by gender roles which change according to a society's cultural makeup.

2. **Method**

2.1. *Subjects*

The study group of comprises a total of 472 first-year university students attending Electrical and Electronics Engineering, Mechanical Engineering, Civil Engineering, Chemical Engineering, Metallurgical Engineering, and Architecture Departments. A total of 30,4% of these students were female while the remaining 69,6% were male.

2.2. *Research Instrument*

Motivated Strategies for Learning Questionnaire (MSLQ):

In order to determine the students' self-regulation based learning strategies (metacognitive self-regulation, time and study environment regulation, effort regulation, help-seeking) and self-efficacy perception scores, the relevant dimensions of the MSLQ developed by Pintrich, Smith, Garcia and Mc Keachie (1991) for use with university students was employed. Designed as a 7-point likert scale, it was used in the course Mathematics I.

Language adaptation equivalency, validity and reliability studies were undertaken prior to the use of the scale. As a result, the Cronbach Alpha reliability coefficients for metacognitive self-regulation was 0.85, for time and study environment regulation was 0.77, for effort regulation was 0.88, for help seeking was 0.76, and for self-efficacy was 0.89.

2.3 Mathematics Achievement

Mathematics achievement was calculated by adding 60% of students' mean scores on the first and second mid-term examination results with 40% of their final examination grades in the course Mathematics I.

2.4. Procedure

The students were given scales to identify their "demographic information, self-regulation based learning strategies, and self-efficacy perceptions" simultaneously. They had 30 minutes to complete the scales. Additionally, their end-of-term grades were obtained from the instructors offering the course Mathematics I.

2.5. Statistical Techniques

"Multiple Regression Analysis" was used in order to identify the mathematics achievement prediction of self-regulation based learning strategies and self-efficacy perception scores with respect to gender. The 13.00 SPSS package program was used for the analyses.

3. Results

The effects of metacognitive self-regulation, time and study environment regulation, effort regulation, help-seeking and self-efficacy perception on mathematics achievement: Multiple regression analysis was used to determine to what extent metacognitive self-regulation, time and study environment regulation, effort regulation, help-seeking and self-efficacy perception predict mathematics achievement.

Prior to the regression analysis, Pearson correlation analysis was conducted to identify the relationship between the independent and dependent variables. Results of the analysis are given in Table 1.

Table 1: Correlation Analysis Results between Dependent And Independent Variables

<i>Variables</i>	<i>N</i>	<i>r</i>	<i>p</i>
<i>Metacognitive self-regulation & mathematics achievement</i>	472	.54	.01
<i>Regulation of time and study environment & mathematics achievement</i>	472	.46	.01
<i>Effort management & mathematics achievement</i>	472	.43	.01
<i>Help seeking & mathematics achievement</i>	472	.25	.01
<i>Self-efficacy & mathematics achievement</i>	472	.44	.01

As shown in Table 1, there is positive and meaningful correlation ($p < .01$) between metacognitive self-regulation, time and study environment regulation, effort regulation, help-seeking and self-efficacy perception scores and mathematics achievement scores. Table 2 presents the multiple regression analysis results relating to the prediction of mathematics achievement by self-regulation based learning strategies and self-efficacy perceptions.

Table 2: Multiple Regression Analysis on Independent Variables and Dependent Variable

Variables	Unstandardized Coefficients		Standardized Coefficients	
	B	SH	β	T
Intercept	-14.10	4.2		-3.31**
Metacognitive self-regulation	.42	.08	.246	4.77**
Regulation of time and study environment	.37	.10	.182	3.72**
Effort management	.26	.17	.075	1.53
Help seeking	.30	.15	.077	1.93*
Self-efficacy	.58	.08	.284	7.15**
R= 0.62 R²= 0.39 F=59.4** *p<.05 **p<.0				

As can be seen from Table 2, the regression analysis results show that self-regulation based learning strategies and self-efficacy perception scores are meaningful predictors of mathematics success. The independent variables of metacognitive self-regulation, time and study environment regulation, effort regulation, help-seeking and self-efficacy perception account for 39% of the variance on the dependent variable of mathematics achievement. When the parameters about the regression model in Table 2 are considered, it can be seen that the relative importance ranking of predictive variables on mathematics achievement scores according to the standardized regression coefficient (β) is; self-efficacy perception, metacognitive self-regulation, time and study environment regulation, help-seeking and effort regulation. It was concluded that, among the independent variables, metacognitive self-regulation ($t=4.77$, $p<.01$), time and study environment regulation ($t=3.72$, $p<.01$), help-seeking ($t=1.93$, $p<.01$), self-efficacy perception ($t=7.15$, $p<.01$) were meaningful predictors of mathematics achievement, while effort regulation was not.

The effects of metacognitive self-regulation, time and study environment regulation, effort regulation, help-seeking and self-efficacy perception on mathematics achievement with respect to gender: Multiple regression analysis was used to determine to what extent metacognitive self-regulation, time and study environment regulation, effort regulation, help-seeking and self-efficacy perception predict mathematics achievement with respect to gender.

Mathematics achievement scores of girls and boys, correlation coefficients between self-regulation based learning strategies and self-efficacy perception scores, and the levels of meaningfulness are given in Table 3.

Table 3: Correlation Analysis Results of Girls and Boys between their Self-Regulation Based Learning Strategies and Self-Efficacy Perception Scores and their Mathematics Achievement Scores

Variables	N	Girls		Boys	
		(mathematics achievement)		(mathematics achievement)	
		r	p*	r	p*
Metacognitive self-regulation	143+329	.36	.01	.59	.01
Regulation of time and study environment	143+329	.39	.01	.46	.01
Effort management	143+329	.22	.01	.20	.01
Help seeking	143+329	.21	.01	.65	.01
Self-efficacy					

As seen from Table 3, positive and meaningful correlations were found between mathematics achievement scores for girls and metacognitive self-regulation, time and study environment regulation, effort regulation, help seeking and self-efficacy perceptions. Parallel to this finding, positive meaningful correlations were also found between

boys' mathematics achievement scores and metacognitive self-regulation, time and study environment regulation, effort regulation; help seeking and self-efficacy perceptions.

Table 4: Multiple Regression Analysis on Independent Variables and Dependent Variable according to Gender

Gender	Variables	Unstandardized Coefficients		Standardized Coefficients			
		B	SH	β	T		
Girls	Intercept	11.33	8.82		1.28		
	Metacognitive	8.09E-02	.11	.05	.45		
	self-regulation	.21	.23	.10	.93		
	Regulation of time and study environment	.96	.40	.26	2.39**		
	Effort management	.44	.28	.12	.01		
	Help seeking	.25	.15	.13	1.69		
	Self-efficacy						
	Intercept	-24.03	3.34		-5.53**		
	Metacognitive	.46	.09	.26	4.92**		
	self-regulation	.38	.09	.19	3.98**		
Boys	Regulation of time and study environment	-6E-02	.16	-.02	-.40		
	Effort management	1.75E-02	.17	.00	.10		
	Help seeking	.97	.09	.46	10.60**		
	Self-efficacy						
$R_g = .48$		$R^2_g = .23$	$F_g = 8.26^{**}$	$R_b = .73$	$R^2_b = .54$	$F_b = 76.77^{**}$	$**P < .01$

Table 4 presents the multiple regression analysis results related to girls' and boys' mathematics achievement scores. The table shows that self-regulation based learning strategies and self-efficacy perception scores are meaningful predictors of mathematics achievement for both genders ($F_{girls} = 8,26$, $p < .01$; $F_{boys} = 76,77$, $p < .01$). In girls, self-regulation based learning strategies and self-efficacy perceptions account for 23% of the variance on mathematics achievement. In boys, the same value is much higher: %54. According to the standardized regression coefficients (β) given in the table, the relative importance ranking of predictors on mathematics achievement scores is as follows in girls: effort regulation, self-efficacy, time and study environment regulation, metacognitive self-regulation, and help seeking. In boys, the relative importance ranking is as follows: self-efficacy perceptions, metacognitive self-regulation, time and study environment regulation, help seeking and effort regulation. While effort regulation ($t = 2.39$, $p < .01$) is a meaningful predictor on its own for girls, metacognitive self-regulation ($t = 4.92$, $p < .01$); time and study environment regulation ($t = 3.98$, $p < .01$) and self-efficacy perceptions ($t = 10.6$, $p < .01$) are meaningful predictors of mathematics achievement in boys.

In brief, metacognitive self-regulation, time and study environment regulation, effort regulation, help-seeking strategies and self-efficacy perception scores were found to have different effects on explaining mathematics achievement with respect to gender. More precisely, metacognitive self-regulation, time and study environment regulation strategies and self-efficacy perceptions were found to have a statistically meaningful effect on

predicting mathematics achievement in boys, whereas effort regulation alone was found to be a meaningful predictor of mathematics achievement in girls.

4. Discussion

At the end of the analyses, a positive relationship was found between the self-regulation based learning strategies and self-efficacy perceptions of university students and their mathematics achievement. The regression analysis showed that all self-regulation learning strategies – except effort regulation – and self-efficacy perceptions have a meaningful effect on explaining the variance in mathematics achievement.

The analyses have shown that self-efficacy perceptions have the biggest role in predicting mathematics achievement. Self-efficacy is the belief of an individual in their own capacity to organize and successfully perform those activities necessary to perform at a certain level (Bandura, 1986:391). Believing in one's achievement is the precondition to being successful in a course. Students with high self-efficacy perceptions more readily adapt to school life and therefore display better achievement (Schunk, 1981). When students believe that they will be successful in a course, they have more confidence that they will be able to regulate their learning, set higher goals for that course, and identify and implement strong strategies to reach their aims.

Studies in the literature have similar findings to that of the present study (Norwich, 1987; Pintrich and De Groot, 1990; Zimmerman and Martinez Pons, 1990; Seegers and Boekaerts, 1993; Pajares and Kranzler, 1995; Fortier et.al., 1995; Chye et.al., 1997; Lopez, 1998; Andrew and Vialle, 1998; Pajares and Graham, 1999; Ader, 2004). Studies undertaken in the areas of foreign language education and social sciences have likewise found a positive relationship between academic achievement and self-efficacy perceptions (Helmke, 1989; Schunk, 1989; Marsh, 1990; Schunk and Swartz, 1993; Malpass, 1999).

It has been found that metacognitive self-regulation strategy takes second place after self-efficacy in the prediction of mathematics achievement. Metacognition is knowing about one's own knowledge, controlling it during the process, and regulating is as necessary. The contents of a mathematics course have a pre-requisite relationship to one another, which means that it is difficult to learn a new subject without mastering the previous ones. As students with metacognitive skills are more aware of their lacks, they make an effort to master old subjects before starting a new one, thus achieving better ultimately.

Findings from studies in the literature about the prediction of mathematics achievement are also in line with those of the present study (Maqsd, 1997; Boekaerts, 1997; Carr and Jessup, 1997; Demir-Gülşen, 2000; Everson and Tobias, 2001, Desoete, 2001). The experimental studies conducted by Volet (1991) and Kramarski and Zeicher (2001) both concluded that the achievement of groups that received metacognitive support in mathematics classes was statistically meaningfully better than those who did not receive such support. These researchers also stated that individuals may improve their metacognitive skills. To achieve this, the learning environment needs to value student participation, provide feedback to students about their development, and allow them to evaluate themselves.

Time and study environment regulation emerged as the third predictor of mathematics achievement. In other words, it was found that students who used their time and study environment effectively achieved more in the mathematics class. This strategy involves planning one's time so as to meet goals, following this plan, and regulating the environment. Likewise, Zimmerman and Martinez Pons (1988) and Paterson (1996) reached similar results too. The findings of the present study support the literature as well.

In the prediction of mathematics achievement, help-seeking emerged as the least important variable. Help-seeking not only has an important place in social constructive theory, but also in self-regulation. Research shows that students who knew when and who to consult for help achieved better than those who did not (Paterson 1996;

Newman 1994). Our findings also support the idea that the use of help-seeking affects mathematics achievement positively.

The current study has shown that effort regulation does not have a meaningful effect on student mathematics achievement. Effort regulation entails taking precautions against failure (Chen, 2002). In a study about the relationship between effort regulation and academic achievement, Paterson (1996) concluded that the former has a positive effect on achievement when taught in academic settings. This result may have been caused by the descriptive nature of the study and the norm based assessment used at the university where the study took place.

The findings of the present study showed that metacognitive self-regulation, time and study environment regulation, effort regulation, help-seeking strategies and self-efficacy perception scores were different in the two genders. In explaining boys' mathematics achievement, metacognitive self-regulation, time and study environment regulation and self-efficacy perceptions had a positive and meaningful effect, whereas in explaining girls' mathematics achievement, effort regulation alone caused a similar effect. Similar findings can be found in other studies cited in the literature. To illustrate, Wolters and Pintrich (1998) and Ader (2004) found lower self-efficacy perceptions among girls in mathematics classes than boys. Similar findings were reached for different courses by Qutami and Abu-Jaber (1997). They showed that girls had lower self-efficacy perceptions than boys in computer classes. However, there are also studies in the literature that show otherwise. For instance, Peklaj and Pecjak, (2002) found that girls had higher metacognitive self-regulation skills than boys in mathematics class. The literature also hosts studies which concluded that self-efficacy perceptions and self-regulation based learning strategies did not vary according to gender. Pajares and Graham (1999), Miller (2000), and Lee and Browman (2001) supported this through their studies. Such different results in the literature may be due to the different outlooks on girls in different cultures. For instance, boys are generally thought to be better inclined to mathematics in Turkey, which may have led them to believe that they are sufficient in mathematics class. The reason why effort regulation was found to be effective in predicting girls' mathematics achievement may have been because they believe they are making more of an effort to be successful. In the Turkish society, where boys are generally encouraged by their families to pursue a higher education, girls more often need to prove to their families that they are successful in order to continue their education.

To sum up, the present study has shown that self-regulation based learning strategies (metacognitive self-regulation, time and study environment regulation, effort regulation, help-seeking) and self-efficacy perceptions have a positive effect on Turkish university students' mathematics achievement. Among all variables, the most effective one changes between the two genders. While the self-regulation based learning strategies of metacognitive self-regulation, time and study environment regulation and self-efficacy perceptions are important in explaining boys' mathematics achievement, effort regulation alone is important in explaining girls' mathematics achievement. This difference may have been caused by culture. In Turkey where boys are perceived to be more valuable to their families (Kağıtçıbaşı, 1981), the mental capacities of boys are supported and admired by their parents. Such an attitude from their parents may be encouraging boys' self-efficacy. On the other hand, girls, whose mental capacities are not equally rewarded by their parents or teachers, may be reaching success with their own effort.

New studies may be conducted by providing a self-regulation based learning environment and measuring the extent to which these environments contribute to the development of girls' and boys' self-regulation skills. Additionally, comprehensive studies are needed about the cross-cultural variables affecting self-regulation skills so that teachers can take more effective measures for enhanced learning.

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4th International Conference on New Horizons in Education

Self-transformation process in wellness and health education

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Abstract

In a modern wellness research it is relevant to analyse how human health associates with physiological changes generated through the action of autonomous nervous system. Mental activity in the form of our perceptions (including proprioception), emotions, cognitive ability (predictions, anticipation, imaginations and needs), cognitive transcriptions in dreams, and mental activity during communication (inner – out), etc., can causing in imbalance in organism. Stress state in fact is also a state of autonomic imbalance, does not matter, if sympathetic or parasympathetic activity is increased because resulting is the same reality - in many different kinds of disorders. Diseases as arthritis, a back pain, cardiovascular disease, type 2 diabetes mellitus, digestive disorders, hypertension, hypotension, spondylitis, etc. are originated in harmless of human organism. Postmodern living period is so called "Period of Stress" and therefore health education and education strategies to resilience building for good health keeping are crucial. The ultimate aim of education is a positive behavioural modification, defined as the Self - Transformation. In the research study is presented the model of Self – Transformation process like a system of complementary attributes of wellness according the wellness definition of WHO in 2000. To understand better Self is a great help for healing process. In this study we try to show it and define on the research base. The study aims to map the current situation of stress and resilience within the educational sector, recognizing the increased level of stress that many educators are experiencing in their daily work.

Keywords: health education, wellness, resilience building, personality coherent development

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1. INTRODUCTION

The definition of wellness (according WHO) presents wellness as: “an optimal state of health of individuals and groups. There are two focal concerns: the realization of the fullest potential of an individual physically, psychologically, socially, spiritually and economically, and the fulfillment of one’s role in the family, community, place of worship, workplace and other settings” (WHO, 2000). Wellness is defined as the principle by which individuals and groups of people learn to behave in a manner conducive to the promotion, maintenance, or restoration of health. Deductively we can found out that wellness begins with human motivation/interests they may have in the improving their living conditions. The educational aim of wellness is to develop in social life a sense of responsibility for health - as individuals, as members of families and as society members. Only through this education it can be changed the paradox situation in the health care, which is nonstop increasing in advanced countries. The **increase in the cost of health care** has had economic impacts in these countries. The origin lies in unfit life style, which depends on “unfit” mental activities like for example in ignorance, in indolence, in a lack of interest, in negligence about personal health. Quality of life develops in depending of individual wants or needs. Individual wants or needs are unique and correspond much with social and spiritual level. It follows that only right intentional education to health and wellness can guide to individual health and especially to the health society. From this point is very important complementation of all education attributes in wellness for a continual building of resilience in main tree education domains, see Fig. 1. Only interactive and integrative education linked “hand in hand” in the three domains can support wellness, health and quality of life in society globally.

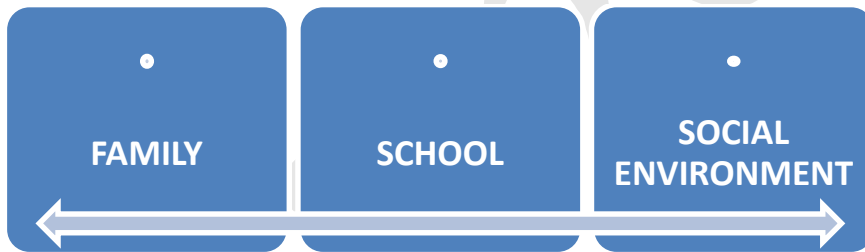


Fig. 1 Coherent cooperation of 3 phenomena of education to wellness

This task is solved intensively especially in last two decades globally in word with the priority of support and protection of mental health. Why? Mental health promotes learning, working and participation in society. The level of mental health and well-being in the population is a key resource for the success of knowledge-based society and economy. However mental disorders are on the rise in the EU and in the whole word globally. According statistic review from 2008 – 2012 almost 50 million citizens in EU (about 11% of the population) are estimated to experience mental disorders, with women and men developing and exhibiting different symptoms. Depression is already the most prevalent health problem in many EU-Member States. Suicide remains a major cause of death. In the EU, there are about 58,000 suicides per year of which 75% are committed by men. Eight Member States are amongst the fifteen countries with the highest male suicide rates in the world. The mental health and well-being of citizens and groups, including all age groups, different genders, ethnic origins and socio-economic groups, needs to be promoted based on targeted educational interventions that take into account and are sensitive to the diversity of the European population.

From a political point of view was 20 years ago favored a need to improve the knowledge base and research determinants and implications of health education and the possibilities for effective interventions in education area, e.g. in school education. School education on national political base is relatively easy alterable and easily controllable. Czech government has issued such a resolution about health education in 2002 (as a condition to be accepted in EU), in the Western European countries about 10-15 years ago. The teacher was transferred into a role of prevention agent and society and often also parents uncritically expected of teachers full responsibility for health education and wellness promotion. Such unreal expectation without inclusion of families and society systematically in this process led to increasing of burn out in teachers very soon. Delisio (2001), Dunham (2002), Rudow (1999) wrote and warned about stress in teaching, about stress and burnout in the teaching profession, about rapid increasing of autoimmune diseases of teachers. It was found out that without special training in health and education strategies to resilience building, teachers are not able to fulfill the role of health promoters successfully and without own health risks. On the other hand it is clear, that teacher has great role in pupil's behavior intuitively (imitation, identification as strong factors in education), what influence daily on pupils. Therefore it is of great importance that teacher is in very good physical and psychic condition, has a lot of knowledge about healthy lifestyle, etc. for health society and quality of life. Teaching profession itself carries a high burden. Teachers present professionals who are exposed to the influence of daily stress in many elements of teaching process. Teachers, which can learn how to be more effective in the management of their own stress levels safe own health and health of pupils, prevented of occupational diseases. To improve educator's resilience to stress, to master strategies to control stress and to develop satisfactory in education (of both – teachers and pupils) and in this way to promote wellness in school environment generally, we realized the down described international research project. The study presents an initiative which main aim is to develop a tool to combat the consequences of the increased pressure that is on educators and the education system as a whole. A consortium of 8 organisations and 2 silent partners, which represent in total 9 countries, was working intensively to achieve this goal within the 2 years duration of the project (November 2010 – October 2012).

2. AIMS

The main goal lied to recognize and analyze needs of teacher's work related stress in the education area and to develop and evaluate useful content with an international perspective to fight educators' and education institution's stress through effective intervention strategies. The second goal was to evaluate psychosocial hazards at a national level (conditions in the work environment that cause stress, burnout, etc.) and work engagement (factors that contribute to resilience) considering perspectives of teachers.

3. METHODOLOGY

3.1 Subjects

In total 459 educators (153 males, 306 females in age interval 30-60) from Belgium (BE), Czech Republic (CZ), Greece (GR), Latvia(LV), Netherlands (NL), Portugal (PT), Slovenia (SI), Switzerland (CH), United Kingdom (UK) Almost half of them were educators working in secondary schools, followed by primary and post-secondary institutions. The majority of the cases were referred either with educators with more than 20 years of

service (31, 7%) or with educators with 1 or 5 years of work (21, 95%) and with educators of 15 – 20 years of educational practice (17, 07%) and 5 - 10 years (14, 63%).

3.2 Instruments

- A. The short version of the Copenhagen Psychosocial Questionnaire (Short COPSOQ II) and Utrecht Work Engagement Scale (UWES) were complemented with two additional socio-demographic variables (nature of the institution and years working in the educational system) to generate the questionnaire distributed to educators translated in mother languages.
- B. The statistical analysis - descriptive statistics, Pearson correlations, Linear regression. For the statistical procedure were created several models supported by the different variables identified during the correlation analysis. The linear regression models analysis must be done by the result obtained in the R Square (should be higher than 0, 5), the significance of the ANOVA (should be equal to 0,000) and also the significance of the coefficients for each variable (less than 0, 1).

3.3 Procedures

The needs analysis for the STRESSLESS project – Improving Educators' Resilience to Stress (www.spi.pt/stressless), was conducted in all the partners' countries and included three general groups identified on the basis of previous research findings: countries with stress levels higher than the European average (e.g. Greece, Latvia, Slovenia, and Switzerland), countries with stress levels lower than the European average (e.g. Belgium, Czech Republic, United Kingdom and, the Netherlands) and countries with stress levels equal to the European average (Portugal). The reference data for this division were the results presented in the European Risk Observatory Report (European Communities, 2009) and ETUCE teacher surveys (2007).

An online version of the questionnaire was available online in order to facilitate the data collection from educators that were invited to participate in the study. The software SPSS (version 17) was used to analyse teacher's needs on the base of the data from the questionnaire.

4. RESULTS AND DISSCUSSION

4.1 General Results

The results were analyzed regarding to the 4 selected indicators, e. g. Work engagement, Work life conflict, Burnout, Stress. These 4 major variables to analyze the consortium defined during the research. Other variables were included in each country when relevant differences were found.

Work engagement:

The statistical analysis showed no significance (R Square = 0,189 for an ANOVA of 0,000), but presented strong consistence regarding the relation of work engagement and quantitative demands, tempo, emotional demands, meaning of work, role clarity and burnout.

On the base of Pearson correlation process, negative correlations (meaning that the increasing of one variable is accompanied by the decreasing of the other) were observed between work engagement, quantitative demands and tempo. Positive correlations (meaning that the increasing of one variable is accompanied by the increasing of the other) were observed between work engagement and emotional demands, meaning of work, predictability, role clarity, leadership, social support, trust, justice, burnout and stress.

From descriptive statistic of the 9 countries data it is evident that in the indicator of "Work engagement" (range 0/6) CZ, UK, SI, PT presented higher results and CH, NL and BE lower results.

Work life conflict:

The statistical analysis showed significance (R Square of 0,529, ANOVA =0,000) and presented a strong relation with quantitative demands, tempo, emotional demands, development, burnout and stress. Positive correlations were found between work life conflict, quantitative demands, tempo, emotional demands, development, meaning of work, burnout and stress.

Negative correlations were found with predictability, rewards, social support, job satisfaction and self-rated health. The indicator of "Work life conflict" concluded that PT presented higher levels (75% of the responses were between 4 and 6 points) and was followed by LV. GR, CZ and UK showed the lower scores.

Burnout

The model created showed significance (R Square of 0,650, ANOVA =0,000) and presented a strong relation with work engagement, emotional demands, work life balance, self-rated health and stress. Positive correlations were observed between burnout, work engagement, tempo, emotional demands, meaning of work, work life conflict and stress.

Negative correlations were found with predictability, rewards, job satisfaction, justice and self-rated health. In the case of "Burnout" indicator (range 0/8) PT was the country with higher levels, followed by LV, SI, CZ and UK. GR, BE and NL were the countries with lower levels of burn-out syndrome.

Stress

The model created showed significance (R Square of 0,598, ANOVA =0,000) and presented a strong relation with quantitative demands, tempo, emotional demands, work life conflict and burnout. Positive correlations were observed between stress, work engagement, quantitative demands, tempo, emotional demands, work life balance and burnout.

Negative correlations were found with predictability, rewards, role clarity, leadership, social support, job satisfaction, justice and self-rated health. The "Stress" indicator (range 0/8) demonstrated that PT was the country with higher levels, followed by CH, SI and BE. In the opposite UK, CZ and NL were the countries with lower levels of stress score.

Very high results compared with the ones found in the original study for all the variables but especially for the bullying cases.

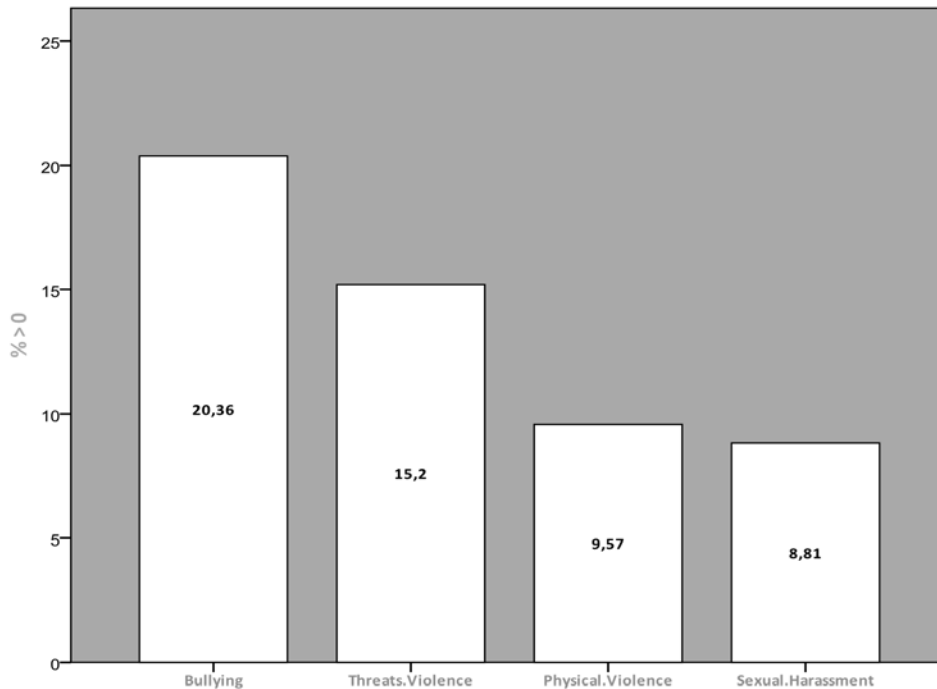


Fig. 2 Level of bullying in sum of percentage (N=459)

Descriptive statistics of Czech participants showed that the majority variables in study[†] were higher in components of “Burnout”, “Meaning of work”, “Emotional demands” and “Stress” comparing with the original study results. The results were equal in components of Work engagement and Work family conflict and lower in the component Quantitative demands comparing with the original study results.

- **Work and well-being:** higher global levels of work engagement, mainly linked with dedication (sense of significance, sense of enthusiasm and proud, sense of challenge and inspiration). Vigour (linked with high levels of energy and resilience, motivation for investing efforts and persistence to difficulties) presented also general high levels. Nevertheless, this was the indicator less valued by the respondents.
- **Psychosocial factors at work:** higher levels regarding meaning of work and role clarity (the work is meaningful and important and clear objectives exist, helping educators to know exactly what is expected). Stress and burnout (feeling worn out, emotionally exhausted, irritable and stressed) integrated

[†] During the research, the consortium defined 4 major variables to analyse: Work Engagement, Work Family Conflict, Burnout and Stress. Other variables were included in each country when relevant differences were found.

the lower scores of the group, together with the quantitative demands (having enough time for the task and getting behind with the work).

- **Other variables:** the majority of the educators are satisfied with their jobs, considered that their health was very good during the 4 last weeks and assumed that the work has in some way a negative effect on their private life).

Offensive Behavior: Similar results compared with the ones found in the original study for the bullying cases (2, 5%). The variables with significant differences regarding the original study were analyzed through a statistical procedure of correlation. The results were the following:

- **Work engagement:** Positive correlations were found between work engagement and predictability, rewards, job satisfaction, self-rated health. Negative correlations were found with quantitative demands.
- **Work family conflict:** Positive correlations were observed between work family conflict and quantitative demands, emotional demands, burnout and stress. Negative correlations were observed with job satisfaction and trust.
- **Burnout:** Positive correlations were observed between burnout and quantitative demands, emotional demands, work family conflict, and stress. Negative correlations were observed with role clarity, leaderships, social support, justice and self-rated health.
- **Stress:** Positive correlations were found between stress and quantitative demands, emotional demands, work family conflict, and burnout. Negative correlations were found with influence at work, role clarity, leadership, social support, justice and self-rated health.
- **Quantitative demands:** Positive correlations were observed between quantitative demands and work family conflict, burnout and stress. Negative correlations were found with work engagement, predictability, rewards, social support, job satisfaction and justice.
- **Emotional demands:** Positive correlations were observed between emotional demands and work family conflict, burnout and stress. Negative correlations were found with job satisfaction.
- **Meaning of work:** A negative correlation was found with stress.

Linear Regression:

- **Work engagement:** R Square=0,431 (not relevant).
- **Work family conflict:** R Square=0,489 (not relevant but with significance for quantitative demands).
- **Burnout:** R Square=0,624 (ANOVA 0,000) with relevant significance for self-rated health and stress.
- **Stress:** R Square=0,720 (ANOVA 0,000) with relevant significance for role clarity and burnout.
- **Quantitative demands:** R Square=0,578 (ANOVA 0,001) with relevant significance for work family conflict
- **Emotional demands:** R Square=0,304 (not relevant).

- **Meaning of work:** No model was created since only a negative correlation with stress was found.

Clarifications:

- It was found an important relation between Stress and Burnout with relevant significance for role clarity and self-rated health.
- It was also found an interesting relation between Quantitative demands and the Work Family Conflict. These and the up mentioned relevant variables are in context with a high feminization in Czech education system and with high divorcing. For women is not easy and often not possible to joint quantitative demand in their job with traditional women roles. Still in Czech society is hard rooted the model, when men are not helping generally to women.
- Therefore the quantitative demands were observed like a strong stress factor with in correlation of tempo, work life balance and burnout. Negative correlations were found with predictability, rewards, role clarity, leadership, social support, job satisfaction, justice and self-rated health.

The research in international cooperation exemplifies that only daily compensation of professional effort and mastering of the effective compensation techniques can keep teacher healthy and stress less. On the base of presented results of the STRESSLESS project analyse and on the base of research results in the EU PROJECT Aim 3 -16 PACZion “**Passau-České Budějovice union for support of teachers’ health**“ the continuum of Self transformation we defined. In the continuum main principles of health protection and support are contained, e.g. Relaxation - Adequate movement regime – Nourishment – Preventive medical care – Professional salutogeneses. The continuum is ordered in the circle to express better the continuity and a possibility to repeat health support paradigm in coherent cycles. On analyze of individual specifics it is possible to start the intervention, for example, from nourishment, or movement and proceeded father with components in the circle line. In psyche it decides about the whole health change, does not matter in which dimension of organism (e.g. overweight reduction).

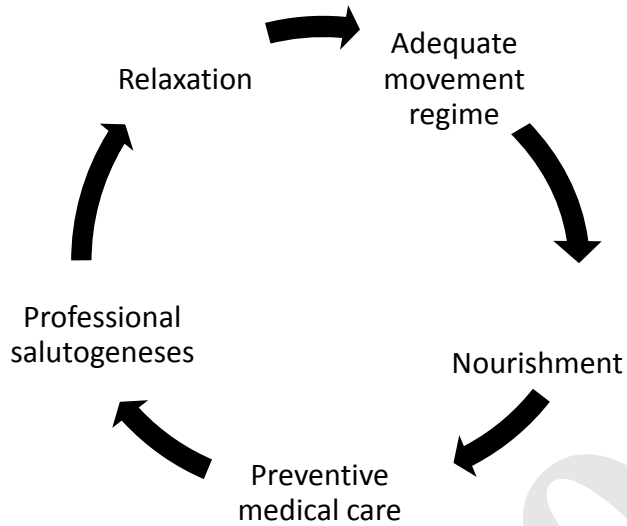


Fig.3 Continuum of Selftransformation in the sense of Health support and Resilience Building (Krejčí, 2010)

We found out that to start by Relaxation is benefited from the view of active life style and health support of teachers, because of their psychic state is key point in area of individual health support and health development. To influence effectively the psyche is most easy just during the relaxation and breathing. It is possible to use many techniques, which all have benefits in self-regulation and self-control development. Relaxation in psychic state can be easy transfer in motoric area, if the principle of adequate movement activity is respected. The process of motoric learning and motoric engram creation, the relaxation plays very positive role.

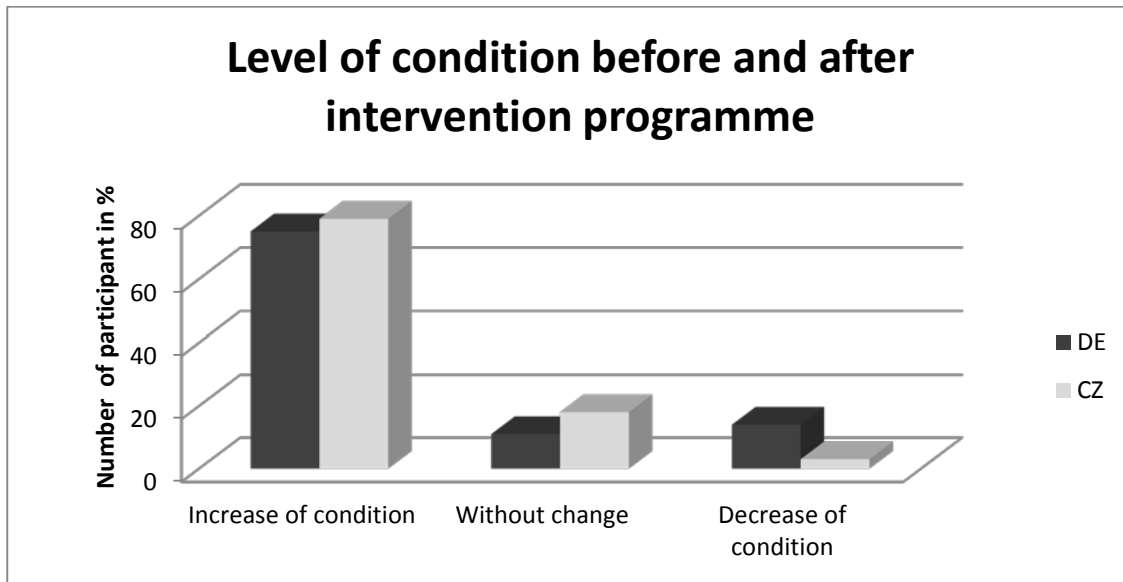


Fig. 4 Level of condition before and after intervention programme (Seibert, N.-Krejčí, M., 2012)

In the state of relaxation and well-being teachers learn easier to motor skills which are a base for the individual adequate movement regime. Mastering of the relaxation leads to homeostasis optimization and positive influences in circadian rhythm.

The next element of the Continuum is the nourishment. Health supported food should be fresh prepared with important portion of raw food (e. g. fruit, nuts, vegetable, milk, müsli, etc). Just in fresh and in raw food are enzymes, which are accelerants of biochemical reactions in human organism (bones construction, muscles, haematogenesis). Ready-to-cook foods, heated food, old food, food with chemic additives influence negatively on organism and health, provoke tiredness. According the results of monitored teachers was found out that they neglect health nourishment and that they have not the health nourishment like a need or attitude. Often mistake of them was a poor breakfast and too opulent dinners. Also hurry during eating time, dis-concentration (calling, reading, TV). Preventive medical care and Professional salutogeneses are the rest parts of the Continuum of Self transformation in the sense of Health support and Health development. Preventive medical care in Czech Republic is based on European tradition of healing and presents self very high of treatment. So it is very wise and advisable to prosper from the possibilities of prevention check-up and care according the individual needs. It is necessary to remark that WHO declares that preventive medical care can positively influence the human health only from 15 -20%. The biggest part can be positively influenced during the active life style including the adequate movement regime. From the view of the Professional salutogeneses for teachers is very important to analyze working milieu, working regime and according that consider carefully risk factors in context of individual health and health of others. On the base of this analyse is possible to implement in life style the salutors, which compensate health risk of the teachers profession – for example voice calmness in teacher's profession, etc.

Body intervention and mental health education strategies

The continuum of Self-transformation in the sense of health support and health development proceeds in coherent cycles (we recommend 3month's cycles), when in the first cycle a basic education is realized and after in other cycle(s) is deepened education in sense of independence of the clients on educators. The aim is the complete individual autonomy, when the learner is able to:

- use relaxation and breathing techniques for tiredness compensation and stress management

- plan and realize an adequate movement regime
- know the benefits of health nourishment and to solve drinking regime and overweight management
- be resistant to false advertising
- know overweight and obesity health risks including health risks of hypo kinesis
- analyze health risks joint to the occupation and to compensate it with adequate salutors

Special situation was for intervention process in overweight or obese participants. In nowadays the movement insufficiency (hypo kinesis) can be observed in adults as in child age as well. Its psychic symptoms (so called “hypo kinetic syndrome”) are impulsivity, irritation, lack of self-control, discomposure and aggressiveness. The movement insufficiency (hypo kinesis) is also one of the main reason of increasing trend of overweight and obesity in teachers. Health complications of the overweight and obesity are numerous and influence negatively on the quality of professional and personal life.

On the base of 2 phases adequate movement regime, induced changes in self-control and in self-esteem, in first through the intervention yoga training program for teachers with overweight, leaded in daily home practicing (3 months), and after through the coherent adequate movement activities (2 weekends, one week course). Physical condition presents a key base to competent teachers work. To define terms of adequate movement regime and adequate movement activity generally was an important postulate and premise in our research.

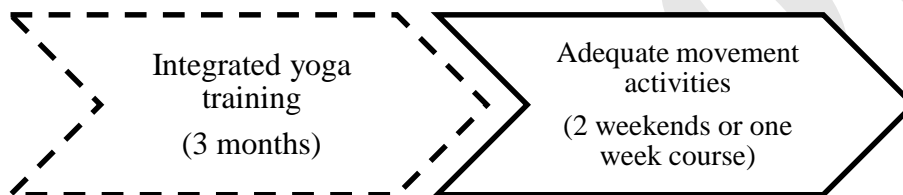


Fig. 5 Scheme of algorithm of 2phases adequate movement regime

Adequate means to be adequate to the age, to the personal skills, to the individual needs etc. The base is created on the well-being, joy, play and creativity. That means to move and in the same time experience well-being and joy. To move and play we can alone or with a partner. Different movement activities, adequate to the individual skills, inclinations and interests and suitable implemented in daily life, create the adequate movement regime. Its basic characteristics and principles are defined (in the line according the importance and the consequence) in the next points:

- **Coping** - in the sense of individual managing and mastering of movement. What for one is easy, for the second is difficult. The main role are playing: condition, age, health situation, impairments, etc. Coping is the base of progress in motor learning.
- **Spontaneity** – in the sense of freedom, facility, pleasure during the movement activity, eventually to experience „flow“ effect. The spontaneity is the preposition for the saturation benefit.
- **Saturation** – in the sense of satisfaction, self-realization, self-determination during the movement activity and after it. The person has tendency to return to the movement activity again and again.
- **Repeatability** – in the sense of wish to return to the movement activity and to develop the performance as possible. Only in this step is real to begin with regular training with variable training load. The person accepts discomfort and even a pain.
- **Training** – in the sense of the variable dosage of the intensity according to the health situation, age, condition, body structure, sex, etc. During the training process can be developed a positive dependency on the movement activity. An obstacle can be availability of the movement activity every day.
- **Availability** – in the sense of regular, daily application of movement activity. It depends of nature conditions, time factors, solvency, laws, etc. Here usually begins combination of daily activity with season, temporal movement activities (for example yoga + alpine skiing + biking). Adequate movement regime is created.

- **Safeness** – in the sense of the accident prevention, rescue during the movement activity realization. To keep principles of safeness. Only safe movement activity is adequate to the person. Again an important role plays: health situation, age, condition, body structure, sex, availability of equipment, etc.

On the base of adequate movement regime is possible to develop individual motoric skills. All, what is learned should be used by teacher in normal daily life and active life style according individual specifics and needs. It is very important if adequate movement regime concludes outdoor activities. Adequate movement activity connected with outdoor has a strong effect on resilience in physical, mental, social and spiritual context in teacher's health.

CONCLUSIONS

In last 20 years the stress involved in a career in teaching has increased considerably. Anxiety, depression, long-term psychical burden, relationship difficulties and even physical illness are just some of the symptoms. The teachers work deals with the effect of undesirable stress on human organism and follow the responses in immunity system. The goal is to provide a survey on this interaction and to alert to the burnout syndrome as manifestation of weakening of the organism at all its levels. The knowledge on the causes, symptoms and prevention of burnout syndrome is focused on the personality of the teacher whose profession is included among the most endangered ones. To the existing pressures of discipline problems are appended poor working conditions and low pay in some countries of EU (Krejčí 2010). Kornatovská (2011) presented in her paper research results of Krejčí, M. et al. (2010) which documented following findings in monitored teachers:

- sickness absence (in many cases long-term),
- sleep problems,
- low motivation,
- low productivity,
- lack of engagement,
- lack of co-ordination,
- poor interpersonal relationships,
- poor student feedback

To develop strategies to control stress should help schools to reduce pressures on their staff by the development of satisfactory in quality of life. Quality of life is the product of the interplay among social, health, economic and environmental conditions which affect human and social development. It can be said that quality of life reflects the difference, the gap, between the hopes and expectations of a person and their present experience.

It seems very necessary to organize workshops for self-preventing from most common diseases of teachers in Czech Republic. It is very important to realize health education programs – including coherent information and practical skills of areas: relaxation, nutrition, adequate movement regime, health care system, professional salutogenesis - for all pre-graduate and post-graduate educationalists in universities and faculties which prepare teachers and educators (Krejčí, 2010). Also regular medical screenings of educationalists should be connected with feedback about healthy life style. The health education should be presented in lifelong learning programs and obligated for all teachers and educationalists. It would be very fruitful to develop instruments and strategies of stress control and stress testing for teachers and heads. It can help to reduce pressures on staff by the development of satisfactory whole-school policies and teachers to be more effective in the management of their own stress levels.

The easier way of education to wellness is to start according the concrete local conditions. No general receipt exists, but it is possible to have inspiration of several successful interventional projects from last decade under ESF support. One of them will be present in this research study. In this context is human health not only a medical category, but it is the category with a wide human context. Physical, mental, social and moral determine of the health need a coordinated approaching to the whole problematic. The base is a respect of personal uniqueness and understanding of comparative facts. Scientific research in the area of wellness should open for people experiences and methods in prevention, protection and development of health and quality of life. educators assumed that work had an important negative effect on their private life. Assuming the results from the correlations, different “models” were created using the linear regression procedure. These models included each one of the dependent variables (Work Engagement, Work Family Conflict, Burnout, Stress, Tempo and Emotional Demands) and all the independent variables that demonstrated positive or negative correlations. Only for some of these dependent variables were found relevant models that can explain the results obtained. In adequate movement regime is the base of perfect teacher’s professional performance connected with resilience to burnout in teachers and their health support generally. Therefore very good results bring non-competitive activities as to absolve a bike trip, to descent the river, walking tour with a dog, paragliding, snowboarding etc., when one does not compare skills and force with others, but more to excel, to realize self. If the adequate movement regime is practiced with friends, colleagues from the teacher profession is upgraded in unforgotten experiences fixed friendships and relations in staff. On the base of found results we recommend to implement mental health support and training of mental hygiene techniques in school education in context with presented program and paradigm of Continuum of Self transformation in the sense of Health support and Health development. Special attention in education process should be gave to optimizing and explanation to sleep habits and circadian rhythm. With mental health support use adequate movement regime and promote movement skills and self – esteem and self – confidence during individual providing of physical activities. Adequate movement regime creates a part of a paradigm - “Continuum of Self transformation in the sense of Health support and Resilience building.

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Significance of Japanese tea ceremony values with ceramic art interpretation

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Abstract

Japanese Tea Ceremony represents harmony, respect, purity and tranquillity which we must embrace in order to achieve the main purpose of the tea ceremony. This event is unique as every process from the tea equipment preparation until the tea is drunk has a distinctive technique. Therefore the positive values are applied to the whole process of the ceremony without not only focusing on the tea as the end product which is essential to present a good value to perfect the ceremony in order to convey it to the guests. Statement of problem is in Malaysia, people value ceramic aesthetically but not the interpretation of it or the values they put in that made the artwork how it is. It is because the artist does not feel the importance of moral values to be the message of their artwork and mostly focuses on the artworks physical. The objective is to instil positive values in ceramic artwork and make it mean something. The values do not have to be labelled specifically for example for nature extinction, political or religious but so long that there are good values to be conversed to people. This is for it not to become just a beautiful artwork but also as a reminder of how important moral values are in the world today as it is being taken for granted each day. This study is based on observation of the ceremony itself. A case study from real life of Japanese culture derived through the comparison with stated in any publication. The summary of this approaches indicate a concept of an art hidden behind these ceremonies. The outcome is an artwork that can be a reminder for us in this grasping world on how important it is to preserve moral values which is the core to live a harmonious live. The Japanese tea ceremony gives a positive impact and teaches good characteristics that need to be instilled in everyone such as manners, beauty, simplicity, respect, appreciation, discipline, humbleness and kindness. The Japanese tea ceremony is a part of Japanese culture that has been kept for a long time and it's proven that the discipline came from this culture. These literature study then be applied as philosophical method in proposing an artwork based on cultural elements.

Keywords: Japanese Tea Ceremony, artwork, culture, moral values.

1. INTRODUCTION

The Japanese Tea ceremony is more than just tea drinking and some say that it is similar as learning steps to a complicated elegant dance as stated by Kalman (1947). It is a very special event for the Japanese and has been an important tradition for their culture where they wear *kimono* which is their traditional attire and attend the tea ceremony to drink green tea in Japanese tea bowl while relaxing and admiring the beauty of the ceremony also leaving all their life problems as they enter the tea room. A tea room is decorated in a very simple manner which it is mainly just the tea ceremony equipment and a few decorations such as Japanese calligraphy, painting as shown in Fig.1. (a) or *ikebana* which is known as flower arrangement as shown in Fig.1. (b).

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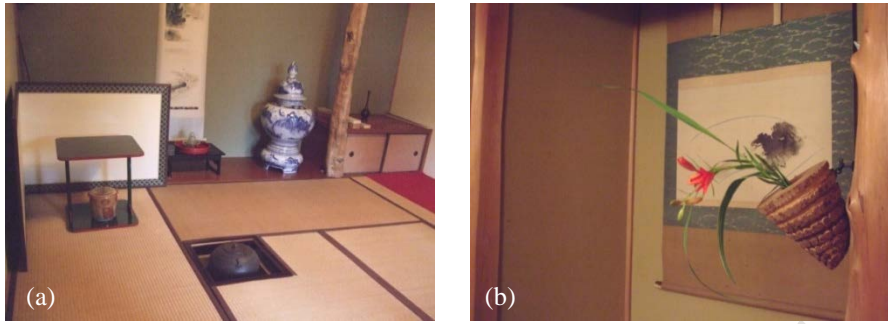


Fig. 1. (a) View of a Japanese Tea Room; (b) Tea Room Decoration

There are a few types of tea ceremony significance for certain event as stated by Tanaka (2000). It represents how precise and important this ceremony is towards the Japanese. Every tea ceremony symbolizes a unique event of green tea stories of all seasons and how it relates to the Japanese society daily lives. There are some to celebrate the first usage of the portable brazier in the New Year of tea and honoring the last remains of the year's supply of tea and to see out the warm months before winter sets in October until the beginning of a new season of tea, the seal of the jar with new tea plucked in spring is broken and the new, fresh tea is used for the first time as stated by Tanaka (2000). There are two types of tea to be mixed which is *koicha* which means thick tea and *usucha* which means thin tea depending on each ceremony.

The Japanese tea ceremony represents harmony, respect, purity and tranquility which we must hold on to in order to achieve the main purpose of the tea ceremony as mentioned by Tanaka (2000). This event is very special because of the fact that every process which from tea equipment preparation process until the tea is drunk has a unique technique. It even has a specific place, techniques, equipments, utensils and garments that are used specially for this event. Everything related to it represents beauty and softness suitable with its high level in the Japanese culture.

As mentioned by Mayuzumi (2006) the tea ceremony guides to thinking, knowing, and writing differently that separates from the main forms of knowledge in academic analysis. As mentioned by Harrison (2011) the practice of tea from an ignorant stranger's position, appears to have many rules, politics and different views. Therefore, it relates to our problem of this research due to the different views and interpretation of values of how differently the perspective people have. Only several feel the importance of embracing the best possible outcome that they can achieve from the spiritual aspect of their art work.

In this research, the researcher determined the importance of moral values to be instilled in the process of producing an artwork parallel with the meaning behind the pieces produced to be conversed to the public as a positive reminder which have the potential to give an enormous impact in the future.

2. METHODOLOGY

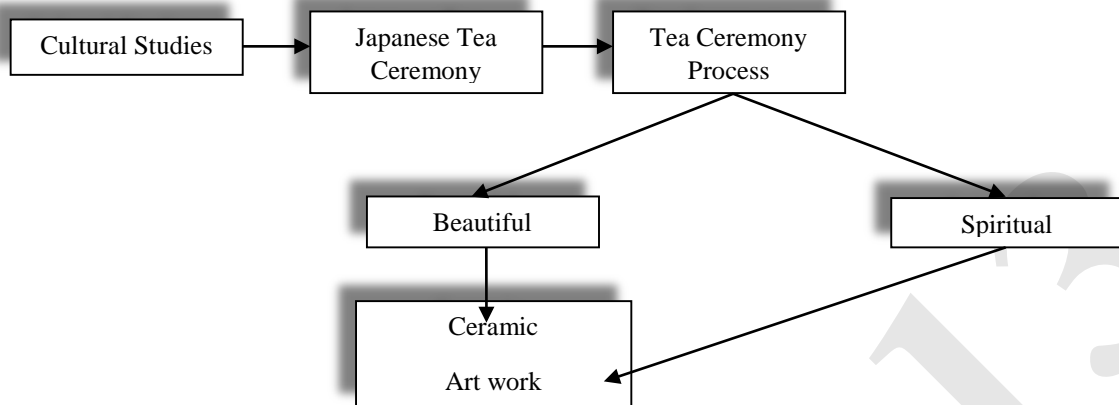


Fig. 2. Relation of Cultural Values Application with Ceramic Art work

Researcher focuses first on ethnographies and provided detailed descriptions and interpretations of the social life event as it happens. The researcher's study was also based on observation in everyday settings usually over a considerable period of time. This is because the focus is to investigate the Japanese Tea Ceremony as a culture that offers elegant tradition of preparing the tea and positive energy and moral values to the society that is capable to be applied to ceramic art work as the medium. Above at Fig. 2 is shown the relation between the traditions of Japanese Tea Ceremony with the application of both beauty as well as moral values to the ceramic art work. The data collected from Japan was acquired with assistance of several friends and supervisors whom assisted with the observation as well as participation in the Japanese Tea Ceremony. The researcher had the opportunity to attend three formal tea ceremony which was hosted by Mrs. Hamajima, Mrs. Fukushima and Mrs. Fumiko.

One of the three ceremonies the researcher was brought by Mr. Tomimoto and Mrs. Keiko the researcher's supervisor and wife, to Mrs. Hamajima's house which is located at Obu. Another was with Mrs. Fumiko's house at Tokoname who is a Japanese Tea Ceremony teacher which is a family member of Mr. Senko Yamamoto, one of Japan's Ceramic Artist the researcher have met. Lastly the researcher observed the ceremony at Ms. Fukushima's place situated at Tokoname once more where she also teaches Japanese Tea Ceremony. The researcher's last observation was taken by Mrs. Kazuko the researcher's landlord. The researcher observed the three tea ceremonies within two weeks time.

Secondary Data was information collected regarding the Japanese Tea Ceremony which is from books and journals. The researcher relied more on books which have information most about its origins, process, utensils and equipments and ethics.

3. RESULTS AND DISCUSSION

There is a message behind every movement made in the Japanese tea ceremony which the researcher hopes to convey to other society thus that they will gain knowledge and understand about the value that is not essential to other society but is important to the Japanese culture. The ceremony leaves a deep impression on oneself who truly engages in the experience and as mentioned by Kondo (1985) through the process is a sequence that expresses emotions and feelings and creates a distilled form and experience hence helping to increase understanding the reasons on the cultures preservations which is something to be instilled in every individual because it is a basis for good moral and personality.

According to Anderson (1991) the Japanese Tea Ceremony is starting to be recognized internationally with the assistance of the Tea Master's whom encouraged them by simulating the trend. Tea ceremony is a very well mannered event but an enjoyable one which those two collaborations is balanced and therefore a good tea ceremony is achieved. Tea ceremony is also a way of the society to get together and enjoy a period of time of positive energy coming out of each other and life issues excluded by just enjoying the beauty of the moment.

The event itself is an intriguing event where making tea becomes art work where many beautiful movements were involved in perfecting the ceremony. This traditional practice takes years of commitment and discipline to master due to the many different steps to be imbued and remembered which signifies meaning of discipline and the moral values that they teach.

The Japanese Tea Ceremony has been practiced by the Japanese society all these years for very good rationale. It gives a positive impact to the society spiritually to motivate discipline and an improved way of thinking that must be continued by the younger generations. Consequently, they will understand every significant of the ceremony has numerous advantages.

The researcher has noticed that the ceremony was full of manner, calm and peace as well as elegantly beautiful. The host for the tea ceremony wears Japanese traditional attire such as the *yukata* or *kimono* preparing the water and tea utensils for the start of tea making as shown in Fig. 3 (a). The host sits in a particular posture with bended knees with straight back as shown in Fig. 3 (b) Muromoto (2013) appropriate with the tea making utensils which is located directly on the floor covered with *tatami* mat.

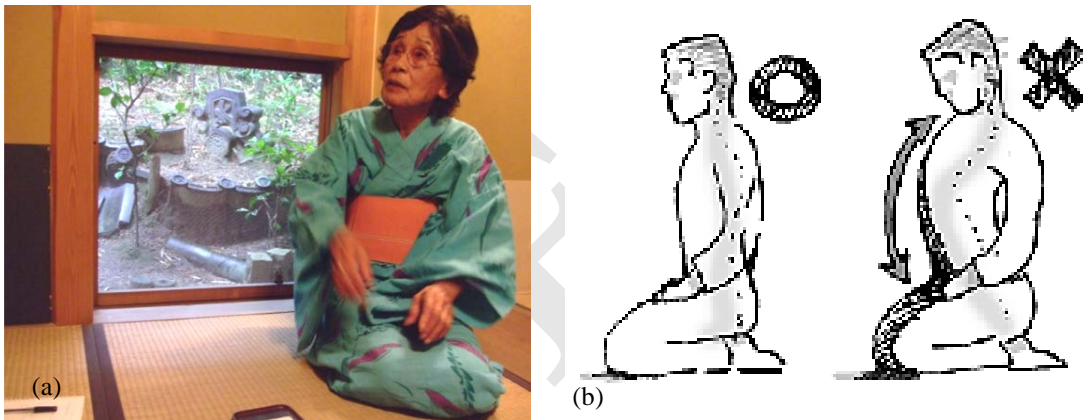


Fig. 3. Mrs. Hamajima in a *Yukata* by the Entrance Door of the Tea Room;
(b) Sitting Posture based on Japanese Culture (Muromoto 2013)

However before that, there are certain processes that are unique and significant related to the tea ceremony. For the host, they are to enter the tea room from the other side of the tea room, technically from inside beginning with a kneeling position holding a water jar. The guests wash their hands at a pond located at the traditional Japanese rock garden which there are special technique required and enters the front door of the tea room by crawling through a small door. Washing the hands is a symbol of purity which it is to clean ourselves before we enter a spiritual ceremony and maintain the value that represents the ceremony.

Then the host prepares the tea gracefully following every movement and technique that makes tea making beautiful like an art. The guests kneel facing the host while waiting as well as observing the host prepare the tea. They are served with extremely sweet desserts that are very famous in Japan. It is a part of the tradition which is to eat sweets before drinking the green tea.

Making the tea also stresses in cleaning and caring for the tea utensils. Every item is wiped with a silk cloth usually red in color symbolizing the importance of all the special handcrafted and unique tea utensils. Just to show the valuable tea utensils are at Japan. The most special utensil is the tea bowl, tea container and the tea spoon which is all appreciated and admired after tea has been drunk, symbolizing that it is essential to appreciate things that are around us, appreciate the simplicity and notice the smallest details that make them special.

Usually, the most expensive tea bowls are the simplest in color and surface design. The famous tea bowls are black *raku* tea bowl which have been used since ancient times. A visit to the Japanese Art Museum was where many *raku* tea bowls were exhibited together showing its value. These also show as well as represent the lifestyle of the Japanese which are progressive but at the same time simple. Simplicity is a way to make their life easier in the most possible way but Japan is one of the leading countries in the world.

After tea has been prepared, the host serves the tea to the guests' one at a time. The front of the tea bowl will be served facing the guests which symbolizes humbleness and respect of the hosts to their guests. That is a good characteristic to be instilled in everyone and should be practiced in our daily lives. Other than that, the ceremony shows an appreciation of art where making tea is beautiful and every item that was used is unique.

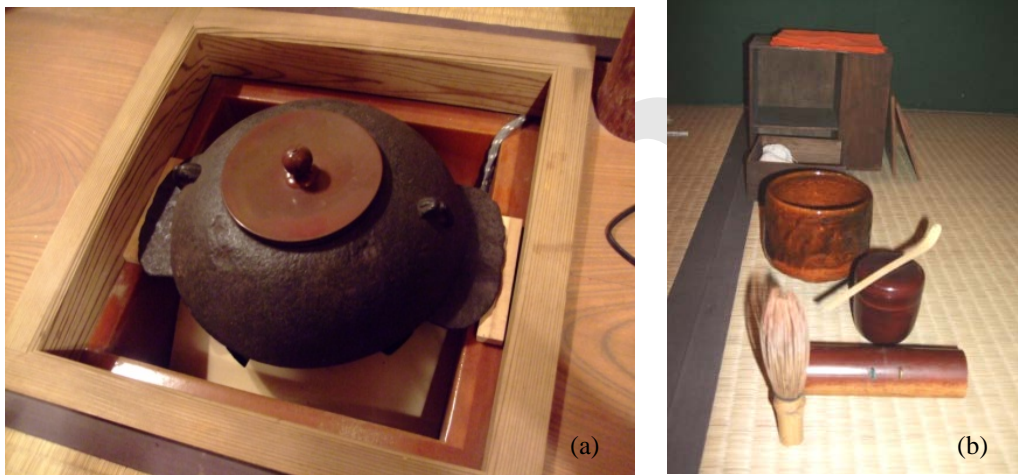


Fig. 4. (a) Water brazier ; (b) Tea Ceremony Utensils

Choosing the tea utensils as shown in Fig. 4 (a), (b), mixing and matching them together requires skill and therefore, it demonstrates the importance to maintain the beauty of the ceremony inside and out. Making the tea, the host needs to be pure and clean at heart. This symbolizes that it is important to be beautiful inside and not only physically beautiful.

The guests also need to play a role in the tea ceremony besides only to drink the tea. They have responsibility to bring some item such as paper tissue, small knife and paper fan which are all to be kept in a small purse. All the items are to be used for eating the dessert which the knife is needed to cut and pick the dessert and the paper tissue as the serviette. This act provides more guest participation in the ceremony and be prepared for it as well as teaches them to be disciplined and well manner. After drinking the tea, the front part of the tea bowl was turned facing the host and drink the tea with three sips, slurping and then turning it back to its former position.

Then the guests then admired the tea utensils and appreciate the craftsmanship shown by the artist through his art. The tea ceremony was ended with a thank you speech between the host and guests mainly on the topic of gratitude for the invitation and participation between the two parties.

4. CONCLUSION

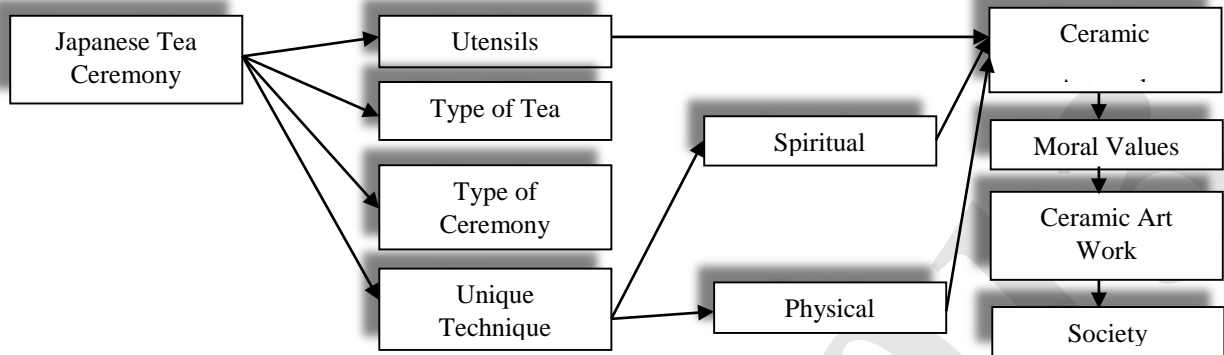


Fig.5. Ideation Process of Research

Fig. 5 illustrates the researcher's ideation process from Japanese Tea Ceremony until it is deliberated to the society. There are a few aspects related to this research topic however the researcher's focus is its tea making technique. It starts with understanding the Japanese Tea Ceremony, a delicate ceremony which not many people appreciate the uniqueness due to its' irrelevant movements and techniques that are important during the ceremony. For an example, pouring water from the hot water pot to the tea cup can be poured normally but for the Japanese Tea Ceremony, they have a special way of pouring the water elegantly and beautiful.

There is also awareness about discipline through the techniques of making tea which there are so many that they need to be carefully done in order to achieve tea making beautiful. There are messages hidden behind the ceremony which are cleanliness, respect and harmony which is practiced two ways, by the host as well as the guests.

The researcher have also acquired out about the kinds of tea ceremony that exists and the different tea utensils that they used according to the seasons. Each tea utensils are special in its' own way and are usually chosen for its uniqueness and they are always handmade because they will be admired at the end of the ceremony. This is a significant value to be instilled in everyone which in this context, to appreciate the craftsmanship of the Japanese traditional skills in making tea ceremony utensils as well as the craftsmen. This is what the researcher is hoping from other society especially the Malaysian ceramic artist which is to improve on that aspect. The researcher strongly believes that from the starting of a pure process filled with good values at heart will produce a meaningful art work that will interpret and appreciated by viewers.

All in all, this research has changed the researcher's point of view about Japanese Tea Ceremony and understanding further on how spiritual values can be translated through art of the tea into ceramic art work and furthermore the society. Everything the researcher has learned relates in daily life and will be applied to improve the researcher's personality and mentality which hopefully can benefit others as well.

5. RECCOMENDATION

This research has deliberated knowledge in understanding the values hidden behind an important cultural event which in this case is the Japanese Tea Ceremony, importance for preserving our culture alive no matter which country we are from and to learn it because there are benefits and reasons why it is still being practiced

until this day. Therefore the researcher recommends the society to learn more in this particular culture for they are inspirational and have an enormous possibility help make us a better person in our daily lives once the understanding is achieved. Other than that, they will be shaping us for a better future as well as to be thought to the newer generations so that they will be inspired from it as well. For that, practicing it might help us instilled the benefits that are hidden all this while and lets us transformed the messages behind the produced art work which some are for us to be disciplined, aware, respectful and so many more positive values that are important that can be shared.

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4th International Conference on New Horizons in Education

Simplexity, teaching and movement

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Abstract

Alain Berthoz, contrasts with the complexity term, the word "simplexity" indicating a property of living beings, which over time have learned to develop increasingly sophisticated solutions to process an increasing number of information. The simplexity is what gives meaning to simplification, since the simplex solutions are guided by an intention, a purpose, a function. This theory can become an instructional scaffolding that supports both the student, and the teacher in the teaching-learning process. The simplexity has to be ascribed therefore, between those which constitute innovations in education.

Educational Technologies simplex solutions show an operative strategy towards new forms of implementation, able to conjugate effectively with the current views of teaching, giving the body a central role in learning.

Currently, the school excludes the component body underestimating the role of the body in motion as a main device through which, creating experiences, we develop learning and produce knowledge.

From the studies conducted, it is clear, as today the body represents a machine of knowledge, so the abstraction and generalizations can produce useful learning only if they have been built from the experience of the world body. To this end, in our project we have tried to combine the learning of mathematics with the bodily component, all referring to the principles of simplexity.

Our goal is to give life to a teaching able to activate a plurality of interactions and stimulate various body mechanisms from which derive the processes of signification and meaning attribution.

1. Introduction

A. Berthoz, opposed to the term complexity the word "simplexity," which is not a mere synonym of simplicity, as in the English-speaking world since the 50's, but a property of living beings, which over time have learned to develop increasingly sophisticated solutions to process an increasing number of information.

The simplexity like the complexity is not simple to understand, and therefore even to illustrate. To fully understand it, it seems correct, in this context, to consider the reasons that pushed A. Berthoz to seek a new strategy to deal with life and the world. It all starts here: the complexity.

1.1 The complexity

The last decades of 20th century witnessed an epic revolution in scientific thought, a revolution which in some ways is not fully completed yet, but it has opened the way to an irreversible path in the history of science. About this revolution there has been talked of chaos, non-linearity, holism, disasters and more, but the concept that best embodies and expresses the character of the new line of thought is complexity. In a short time we had to accept a series of changes in the traditional view of nature that, despite the variety of application areas explored are based on two fundamental principles: the effects are not proportional to their causes, and the whole is more

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than the sum of the parts. These principles were present in science even earlier, but were considered as non-essential characteristics of nature, contingencies which with appropriate approximations could be eliminated without affecting the deep understanding of the phenomena. Instead, the development of the new science has shown how nature, from the level of elementary constituents to the one of more structured biological systems to the human social and economic network, is intrinsically and irreducibly complex.

Niklas Luhmann introduces additional elements in the complexity characterization, he says that an event is complex if it consists of so many elements that they can be put in relation to each other only selectively.

The greater is the amount and variety of relationships between elements of a system, the greater is its complexity. The main goal of complexity theory is to understand the behaviour of complex systems. Complex systems are systems whose behaviour can not be understood from the behaviour of the individual elements that make them up because they interact, the interaction among the individual elements determines the overall behaviour of the systems and provides them with the properties that can be completely extraneous to the single elements. The autopoietic concept is important when talking about the complexity, Maturana and Varela defined autopoietic unity as a unit that is capable of self-generating through a network of reactions that take place within a confined space.

This speech leads to another image representing the life as a system that follows a cyclical logic, an organized system, which generates a network of reactions, for example a metabolic one, but, generally, any network of reactions, which in turn generates molecular compounds, then re-assembled in the same system and so on, in a cyclical logic where there is no beginning and no end.

1.2 The complexity of 'human being'

We talk about complexity and movement not only to emphasize how complex is at a neuronal and muscle level the possibility of performing the simplest of movements, but also because the movement allows us to build actions that face complexity. So thanks to the movement we express ourselves, and through it we explore the world around us, a complex world, in fact, that could not be tackled without a previous experience, deriving from body exploration.

Today we live according to the principles of disjunction, reduction and abstraction, which together form what Morin calls the "paradigm of simplification." To formulate this principle, which is fundamental for the West, it was Descartes who divided the thinking subject (*res cogitans*) from the body (*res extensa*). This principle has allowed us to analyze the world as something distinct and distant, so that science, philosophy and other disciplines did enormous progress. We have had the consequences of this way of conceiving reality, only since the twentieth century. This conception brings science to be completely separated from philosophy and this entails, without a doubt, the inability of science to reflect on itself. The only way, according to Morin, to solve this problem has been another simplification, and more precisely the reduction of the complex to simple. This means discover that behind the apparent complexity of the phenomena, there is nothing but a perfect order, simplified, if we can say so by mathematical formulas and equations. With the introduction of complexity science the world has ceased to be linear and Cartesian dualism has been replaced by a dense network of interconnections that made it difficult to distinguish the individual parts from the whole.

!1.1 Complexity VS Simplicity?

This collection of fascinating thesis - often enclosed in the expression "order from disorder" - has stimulated Alain Berthoz, to lay the foundations of a new theory, which based on the same principles of complexity tries to go further. According to the author the excessive propensity to complexity, expressed by contemporary societies, has been the main cause of the simultaneous increasing of methods aimed at simplifying complex situations, which, paradoxically, have produced a further increase in complexity. To make computers easily usable by

anyone, very complex programs have been developed, so that "the more the use of computers is simple, the more the software will be heavy." The conclusion reached is that Berthoz "simplify comes at a price." Simplify for our brain has a price, but it is a necessity, since it cannot store the excessive bombardment of information that every day, indeed every millisecond, it is exposed.

Very often people make the mistake of confusing the word simplicity with that of simplicity and yet they are two concepts differ materially because simplicity means the absence of complexity, while the simplicity is deeply linked to the complexity.

2. The Simplicity

The simplicity is a property of living beings, is a set of solutions found by the latter so that, despite the complexity of natural processes, the brain can prepare the deed and anticipate consequences, identifying faster solutions, more effective and stylish, this in relational processes allows to predict the reactions of others.

The simplicity is therefore a decipherable complexity because it is based on a rich combination of simple rules.

More over it is important to emphasize that each organism has its own rules of simplification, these vary from individual to individual also according to its own Umwelt, namely the relationship that the subject has with the environment of belonging, and its relationship in it.

As stated by Uri Alon observing the biological phenomena of living beings genetic make one a words we can use to defined them is surely be "complex". As each protein is similar to spaghetti tangled and held together by atomic bonds. Yet these relations are simpler than you might think, as starting from a limited and small number of basic schemes. The fact that the basic patterns are limited and the like, gives a striking example of what is the simplicity from the genetic point of view and biological. Indeed identical or similar patterns are used in all living beings to minimize the energy and increase the speed of processing of the information.

There are properties of living organisms that constitute fundamental tools for a better definition of the simplicity concept:

Separation of duties: the dimension of time is a matter of separation of functions, there are indeed some molecular entities who work more quickly, whereas others operate more slowly, what to facilitate the distinction of the different tasks. This separation of functions is also visible in motor control and perception, where there are tonics, slow and steady systems and rapid and transient systems, both systems cooperate.

Differentiation: namely modularity, differentiate tasks within a company or organization allows a greater efficiency.

The rapidity: it is based on anticipating and predicting the consequences of an action. This is seen for example in the human being implementing motor action anticipating the danger of an obstacle that would result in the fall, the motor action is in fact active in 100 milliseconds. This property can also be found in some of decisions taken, that sometimes occur in a fraction of a second. One way to make quick and easy a solution to a problem is called "diversion simplicity" which takes up the mathematical model of Thom, or focus on special features, bifurcations and critical elements of a problem and simplify everything else. To put it in a Cartesian way: decompose the problem into a series of easier sub-problems broken down into modules and then recomposing.

Reliability: this property does not link well to the concept of complexity, especially if the person in question is the human being with its different facets to the molecular and cognitive level. To increase the reliability of these processes, we make use of tools such as: the redundancy, the use of paradoxical noise, cooperation between inhibition and excitation, the use of coupled oscillators.

The flexibility and adaptation to climate change: is the ability of an organism to act in different ways to solve a problem depending on its type and know how to deal with new situations. An example may be in teaching what the teacher arises in explaining the decimal numbers to a class, the easiest and fastest way would seemingly be to implement a lecture, but the risk is that the class is not able to internalize the concept. The solution semplessa

instead is to create a new method of teaching, for example based on the embodied cognition, that even if requires more time ensures a greater stimulus for students and as a result an internalization of the concept, ensuring that the teacher has a solid foundations on which to build more complex concepts.

The memory: the memory of a past experience is vital to deal with the present and to predict the consequences of future action. The division of different areas in the memory refers to the mechanism of modularity.

The generalization is especially crucial in the movement, it allows us to move in space and is at the origin of human thought.

2.1 Simplexity and movement

Our body and the organization of infinitesimal connections it has with our brain are explanatory of what we mean by simplexity. The movements we continuously make with our body, from the simplest to the most complex, are faithfully subject to the simplex laws.

Berthoz in his book "The sense of movement" describes the laws simplifying the movement.

To delineate them he invites us to describe an elliptical path with a finger, pointing out how the speed varies along the orbit: where the curve is reduced you progress faster, hence the tangential velocity. A very important law is the basis of this phenomenon: the power law $1/3$, which binds the tangential velocity to the radius of curvature. The origin of this law is simple as it leads to reduce the energy to a minimum and consequently also the jerk, that is the speed of variation of the acceleration of a movement. There is also a very close relationship between the velocity along the trajectory, the curvature, and the twist, the speed is determined by the degree of twisting of the body segment under examination. Many authors argue this law is also the basis for the perception of movement.

Every movement of our body is the result of the combination of basic motor patterns, defined primitives of motor actions, they belong to a wide range of movements inborn or acquired during childhood. The combination of primitive motors makes possible movements such as walking, grasping, postural control, avoidance. These synergies are limited, but they can also be acquired through training, also thanks to mirror neurons we simulate the easier movement as much as we perceive them as family. On this basis it is possible to recreate the movements against nature if you practice with intensive practice, because our brain is able to reorganize their functional connections.

2.2 The gesture

Continuing to outline the movements of our body that respond to the principles of simplexity, we can neglect the significance of the gesture.

To the Greeks and Latins the gesture, or the *actio* must express the movements of the soul according to four registers:

- the physiognomy (*vultus*);
- the voice (*sonus*);
- the gesture or movement (*gestus*);
- the gait (*incessus*).

The gesture is more than the simple and the complex, because he embodies the simplexity.

It's simplex because it allows our brain, in a concise and straightforward to grasp a reality, an intention, a thought, a complex social relationship.

According Berthoz we can distinguish three broad categories of action:

- The gesture can also be a form of simplified coding, as it can be for example a military salute, the codes of the army or even the gestures that performs a traffic cop at an intersection;
- Finally the gesture can also be a sign of an emotion, intention and thus have a more abstract sense.

The fact that we communicate through the gesture implies the other in his own body. According to the philosopher and psychologist Theodule Ribot emotion is first of all "e-motion" then leaves from movement. The gesture represents the very essence of simplicity of living organisms.

The simplicity assumes that the brain has information, not just the word, to give a sense of the gestures. Information can not only come from the outside world, but there must be some link between the nature of the information and the laws of operation and interpretation of our brain. So we need to learn the meaning of gestures that relate to human relationships, social norms or religious symbols.

Verbal language is undoubtedly essential part of communication between human beings, in fact, has allowed a rich repertoire of trade, it undoubtedly belongs to simplicity as it allows to simulate reality by replacing a series of signs and symbols.

However, the verbal language is not the only way that men have to communicate, non-verbal communication, which has been long underestimated in itself has got a lot of communicative potential. Men, like animals, have in fact a form of non-verbal communication based on the body, on movement and gesture.

The repertoire of gestures is very vast and is always accompanied by attitudes or postures, gestures are not only the expression of the body but the whole person.

Why do we define the gesture simplex? The gesture is a manifestation of simplicity because it is an immediate summary of the complex reality, it contains the essence of what it is to act and not just the action, reflecting both the intention and the context. It also takes into account the psycho-physical characteristics of the person who does it, it can also be an anticipation of future action. Finally, we have an immediate perception, as in the act there 's evidence.

Doing complex and specific gestures is not always easy, but with practice you can hone all the gestures, make them faster and gain a very personal form. The initial hesitations, the need for multiple points of reference are replaced by security, the mastery of gesture and elastic adaptability. The gesture becomes unique and no more fragmented, it needs very few points of reference, so the movements are concatenated as the notes in a melody.

3. The simplicity, movement and teaching

Currently, most of the technologies used in schools excludes the component body underestimating the role of the body in motion as a "main device through which, realizing experiences, we develop learning and producing knowledge" (Rivoltella, P., 2012) - "and refusing to" look the corporeality teaching as a real situated practice and consider the results of teaching as the final product of a complex non-linear "explainable" (Sibilio, M., 2011).

A scientific reflection on the body as a "machine of knowledge" (Varela, 1990), thanks to that "the abstraction and generalizations can produce useful learning only if they have been build from the experience of the world body" (Rivoltella, 2012), would favour a necessary diversion of educational research towards strategies to exploit technologies able to reproduce and amplify in the digital environment, many of the mechanisms that the body puts in place to deal with the complexity of the Umwelt in which inter-acts (Berthoz, 2011 p .14). In fact, the opportunity to activate a plurality of interactions able to stimulate various bodily mechanisms from which origin the processes of signification and attribution of meaning, can help to enrich the boundaries of experiencing in education, widening the opportunities to decipher the complexity the process of teaching-learning "More generally we can say that the complexity of the world can be easily overcome if our brain processes some consistency between the components of the real" (Berthoz, 2011 p.55).

In this sense, the teaching techniques simplex "showed an operational strategy to a specific perspective of" ergonomics teaching": the deviation from simplistic strategies for selecting technology, towards new forms of implementation are able to conjugate effectively with current pedagogical visions, returning to the body a central role in the relationship technology/learning and recognizing the action the ability to make possible, and at the same time, "exercise", a projective-cognitive function; "projective the brain is able to evoke a complete scene to interpret the world as it has been perceived and experienced in a given time in the past "(Berthoz, 2011 p.58).

The movements are not a pure mechanism, a means to achieve something, motor actions play an important role in the formation of the mind, affect learning and are the basis of language. Movements, motor patterns and physical relationship with reality develop the mental logic and opens up the thought. Generally when we think of mind we focus more on the perception and ideas but not on the move yet even the latter has a fundamental role in the mental representations. Very often it is believed that the action starts from a sensory perception which is follows a cognitive processing which then gives to life motor act. But you can also find a pattern not so linear, but cyclical, the body that interacts and changes the surrounding environment, the perception of consequences and the influence it has on the successive movements. So thinking is simply to decide which move to make then, from this point of view the movement is not the means to meet the demands of the mind, but is the mind is to meet the demands of the action.

This way of looking at reality may seem somewhat paradoxical because motor functions are often considered low-level, subordinate to that which is pure thought.

As mentioned previously, however, the body is closely related to areas of the cortex responsible of real or imaginary movements, in other words the same area of the brain comes into operation when we imagine a movement or when this is planned.

According to some neurophysiologists as William Calvin the evolution of some motor behaviours, such as the ability to construct and manipulate the objects, has meant affirm a logic motor based on the structuring of a concatenated sequence of steps: as the motor cortex and the pre-motor have developed a sequential capacity inducing an area, that of Broca that controls the drive of the language, to generate the sequences of syllables that lead to the word.

There is a close interplay between motility and thought, from the point of view of the natural history of man, from the ontogenetic point of view, and from the point of view of functioning of the mind, in fact now focus on a problem and consequently to think leads to a tension of the muscles of the neck.

3.1 *A new perspective on teaching and educational*

The profound changes that have altered over the years the society in its social, economic, cultural and professional in fact have also transformed the educational systems and training. The advent of new communication and information technologies have created new possibilities for each person to have access to information, to knowledge, involving a change in the skills required to understand and act in the current social, national and international contest and to carry out their functions. The change of the society brings as a consequence the transformation of the demand for education and training.

It is then proposed a not self-referential school, but open to society, the processes of change that can improve its educational effectiveness in terms of outcomes of training. A school that expresses its offering educational curriculum and taking into account a possible coalition between body, mind, and language by taking a playful approach. This new perspective takes into account especially the new concept of simplicity discovered by A. Berthoz, as today to cope with the increasing complexity it is necessary that not only the individual human being implements simplex solutions, but also the school to embrace this concept to enhance and facilitate their students learning.

The work comes to life from the theories of authors such as P. Dennison "movement is the door of 'learning', McLuhan" there is no learning without fun and there is no fun without learning ", A. Damasio "research has convinced me that emotion is an integrated part of learning.", A. Einstein "means learning experience, anything else is just information."

It has been questioned whether in fact to meet the needs of the application you can find a simple solution that will stimulate students and will be therefore not only effective, but also innovative, in specific case for learning the English language. The solution that fully reflects the simplex principles has been in our opinion the possible coalition between body, mind, and language.

The project seeks to undertake a practical study, and not just in theoretical level, that having "the purpose of identifying the body both didactically accessible resources for the promotion of knowledge, and the physiological properties responsible for the 'adaptation' of the body to 'environment and turn them into principles of simplifying it a didactic act." The idea was born from the need to promote innovative methodologies in the school for the learning of a foreign language. With this new strategy is expected teaching to be based on full immersion of student in the language as a foreign mother tongue, like the mother of the rest, is a dynamic character, so it must be learned not as a simple idea to leave in a dark drawer of mind, but to be in constant use, to express needs, to solve situations. And this is the reason why it was decided to associate it to learning body, to emphasize and amplify that the participatory nature of this new teaching, which no longer provides a linear learning, but a cyclical one, where future experiences are to reinforce old ones automatically .

Thus we find a simple solution to the problem of lack of stimulation in the school, and now due to excessive static lectures, in order to improve the performances and skills of each student, in this case in the English language.

4. Conclusion

"Tell me and forget. Maybe show me and maybe I will remember. Involve me and then I will understand!"

The maximum of Confucius holds the value of the hypothetical research, because through our experience it could be shown that a coalition between body, mind, and language is possible becomes necessary as a new frontier for teaching that breaks the mould with the classical tradition of lectures and with aseptic mnemonic learning. The combination of these three elements might be understood to be the winner for the school of the future. A school that lays the foundation on the body, on the motion, on a new way of learning, a school in the name of a new goal, simplicity.

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Situation assessment of students of food engineering department: the sample of Namık Kemal University

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Abstract

The aim of this study was to investigate the opinions of the students of food engineering department about their department, their expectations from the job. A survey study was conducted with the students (totally 174 students) of Food Engineering Department in Namık Kemal University Agricultural Faculty in order to find answers for such questions as the following: What do our students think about the efficiency of education they take in order to be a food engineer with a foundation that is appropriate for this definition? What are their expectations from departments regarding education? According to the survey results, these points were observed that most of the students of the department chose food engineering department consciously, and that 46 % of our department's students put our university in the first five ranks in the preference list of universities; moreover, they agreed on the following issues: laboratory conditions do not satisfy the students, and they should be better; the number of the students accessed to the department is excessive. By and large, it was observed that although the students hold a view about employment potential of their jobs, they are reluctant to work in their own jobs. They also demand that the courses should be supported with current issues. They reported that the present practices about the food control are insufficient.

Keywords: survey, food engineering department, students, education

1. Introduction

A food engineer is someone who plans for foodstuff to be processed, protected and stored up in accordance with the standards without losing its nutritional value, conducting its practice and developing new systems. He makes research in respect to protecting foodstuff for a long time without losing their qualities, making use of stuff more productively, utilizing wastes, turning them into new products or reducing them to minimal levels (Yılmaz, 2005).

In line with the researches he makes, he prepares projects regarding forming new products and developing more affordable production techniques and conducts these. By removing possible problems that can emerge in the course of production, he supplies continuity of functionality. As a producer, he chooses the most convenient methods that can compete with other producers, does studies regarding producing the best product with the least cost. He supervises and exerting quality control of the production in all the phases from production until it reaches the consumer (Yılmaz, 2005; Demirci, 2010).

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Namık Kemal University Agricultural Faculty Food Engineering Department was founded in 1982. While continuing its education as affiliated to Trakya University, it was affiliated to Namık Kemal University with the foundation of this university. In the department, there are three laboratories and totally 18 academic staff, particularly 14 lecturers and 4 research assistants (Anonymous 2012). The answers for the questions regarding the opinions of the students of food engineering department about their department, their expectations from the job, activities they fulfill with the aim of carrying out what they learn in their social life or improving themselves were looked for

2. Material and method

This research is a study aiming at receiving opinions of the students of Namık Kemal University Agricultural Faculty Food Engineering Department regarding their satisfaction level of their department by means of surveys. The survey was conducted with 174 students by interviewing them face to face. The survey data were itemized in the computer with Microsoft Word and Excel Package Software and organized in the form of tables. The comments of tables were carried out with arithmetic average and % calculations.

3. Results

In Namık Kemal University Agricultural Faculty, the total number of the students is 1495. 643 (%43) of these students are female while 852 (57%) are male. The number of the students of Faculty's Food Engineering Department is 284, and 201 (71%) of them are female while 83 (29%) are male. According to the survey made face to face with 174 students out of Food Engineering Department students, 125 (72%) are female while 49 (28%) are male. When the total number of students is considered, it can be seen that the number of female students are more than male ones. As for the age of the participants, 87 (50%) are 20 and under 20 whereas the others (50%) are over 20. The distribution of the students according to high schools they graduated from is as the following: there are 86 students (49%) from Anadolu High School, 81 (47%) from general high school, 1 student from science high school and 6 students from other vocational high school.

They were asked in which number their preference for the department was when they gained the right to enter the department, and it was determined that 80 students (46%) wrote their preference between 1-5 in the list, 43 (25%) between 6-10, 51 (29%) wrote 10 and over in the preference list. When the students' preference is considered, it can be said that they succeeded in accessing the department in line with their eagerness. Similar results were reported by Seviktekin, Nargileçekenler and Çetin (2012). In respect to the previous question, when they were asked whether or not they chose food engineering department consciously, 149 students (86%) said "yes" while 25 (14%) said "no". When they were asked what their opinion about the number of students accessing to the department in which they study, 62 students (36%) found the number sufficient, 106 (61%) stated that the number is too high whereas 6 students (3%) said that they had no idea on this subject. 63 students are enrolled in Namık Kemal University Agricultural Faculty Food Engineering Department every year. When 3 students with the quota of undergraduate transfer and 3 students with vertical transfer are added to this number, it reaches 69. This number poses as a problem in dividing students into groups in applied courses. The replies given to the survey confirm this problem. When the students were asked if they contact with the lecturers outside the courses, 61% (106) of the participants reported that they can contact and negotiate their questions and problems while 39% expressed that they cannot contact.

The participants (78%) claim that they cannot use the laboratories when they want. The rest of the students (22%) state that they use the laboratories when they want and that they do not encounter with any problem in that. The fact that those particularly thinking in that way and students who make an explanation are in the last class and

they often prepare dissertations under the control of the assistants support this idea. It was determined that 30% of the students want to work in production after graduation, 24% want to work in laboratories, 20% in research development department, 19% in quality control and 9% in business and marketing department.

When the students were asked if they wanted to produce a new product, in which technology it would be, 35% of them reported that it would be in dairy products, and 30% stated that it would be in aroma-additives. It is followed by the fact that 11% thought that it would be in cereals, and in meat products for 9%.

It was found out that when they graduate, the proportion of those that do not want to work in another area other than food engineering is 56% while that of those wanting to work in another area is 44%.

It was also revealed that while doing the shopping, 122 students look at production and last consumption date, 88 students look at the brand, 79 students at the content, 78 students at the price, 60 students at additives, 54 students at nutrition and calorific value, 39 students at if there is a discount, and 38 students look at package. They expressed that they choose selectively because of the subjects they study in the courses. In this question, they chose more than one option.

When they were asked how they follow developments in food industry as food engineering students, most of them (154 students) say that they use the Internet. 27 students follow various food magazines, 30 students follow conferences, 14 students use scientific articles, and 13 students follow fairs. 7 students say that they do not follow anything. The students chose more than one option in this question.

When the students were asked whether they improve themselves outside the university, 122 replied "yes", and as for how they improve themselves, 59 students improve themselves with certificate programs, 53 students with attending the courses, 40 students with attending conferences, 21 students with following fairs, 23 students with other things. In this question too, they chose more than one preference.

In order to determine the opinions of the students about the education of the department where they study, the questions asked and their replies are seen in Table 1.

Table 1: The students' opinions about the department in which they study (%)

	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
I find our department's education quality sufficient	6	41	31	16	6
I think that it is true that food engineering department is within the scope of agricultural faculty	14	29	24	18	15
I think that the content of the courses is suitable	9	50	25	12	4
I demand that the courses should be supported with current issues	63	32	4	-	1

The courses are supported with current issues	4	28	38	24	6
I think that the questions in the exams are in parallel with the courses	10	44	26	11	9
I find the resources used for the courses sufficient	4	33	29	27	7
I find the lecturers' teaching sufficient	5	34	36	17	8
I think that the course duration is used effectively	10	49	25	11	5
I think that the variety and number of the courses taken in a term are sufficient	13	48	14	13	12
I find the laboratories that we use sufficient	2	10	25	28	35
I hold a view about the occupation potential of food engineering	18	56	17	8	1
I apply what I have learnt in the place where I live	12	35	27	19	7
I think that supervising the food products in our country is sufficient	2	7	27	30	34
I think that food engineers take part in supervisions sufficiently	4	9	25	30	32
I think that education that we take is sufficient for our career and competence	3	18	36	26	17

4. Conclusion

According to the results of the surveys made with the students of Namık Kemal University Food Engineering Department, it was observed that most of the students in the department choose food engineering department consciously, and also that 46% of the them wrote our university in the first 5 preferences in the preference order; moreover, they agree on the points that laboratory conditions do not satisfy them and that the number of the students accessed to the department is excessive. Although the students generally hold a view about their occupation potential, it was observed that they are not eager to do their jobs. In addition to all these results, the students prefer the Internet as popular in order to improve themselves in the food area, and they expect the courses to be supported with current issues.

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Social Network in Education: a Mathematical pilot test.

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Abstract

Nowadays the use of ICT technologies, and more specifically computers, is increasingly fast in all activities. Connected to the increase use of new technologies is also the use of social networks. New forms of connection spread among the internet, occupying an empty space of the web and also significant time of youngsters, becoming a daily routine for all of them. The network communication triggered a considerable advance in social behaviour, and originated several social networks. Examples are Facebook, Twitter, Hi5, Orkut and others, some of these increased rapidly and remain nowadays, other succumbed to the natural evolution. Following Marteleto (2001), these networks are characterized as being social structures composed of persons or organizations, connected by one or more types of relationships that share common goals and values.

Over the past few decades the Education began to look for new technologies as a tool to be used in order to improve the teaching process. We are now faced with another major challenge, the evolution and exponential growth of social networks around the web.

New questions arise:

- Social networks may be one more step on the staircase of using new technologies in teaching and learning process?
- Do these can be useful tools to achieve the proposed objectives, as well the creation of rich moments of learning?

In this article we intend to expose, through our experience of using a social network, in the specific case Facebook, what can be done within the framework of a subject at university level. We analyse what we call the Hybrid Model Guide (HMG) of a subject. This hybrid model makes the connection between the contents of a subject and how they can complement and associate with the creation of open or closed group within Facebook.

Keywords: Mathematics Education; Social Network

1. Introduction

It is our understanding that education must be aware of changes in terms of what nowadays is defined as being the Web 2.0. As Patrício and Gonçalves (2010) say, the Web 2.0 tools, like social networks, provide many opportunities for creating a learning environment effective, efficient and engaging. Innovation, collaboration, interaction, sharing, pro-activity, participation, critical thinking and reflective, are some of the advantages of using Web 2.0 in educational settings.

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Other important thing is the integration of social networks with tablets and cell phones as it is say in Educause (2007), the ability to browse the site or upload photos from a phone and communicate with the site through text messages - moves the notion of social networking away from computers and into the realm of an “always on” application. This is an important step forward to the possibility of being in touch with education everywhere. So clearly, there are several aspects that we need to discuss considering the use of social networks, in our case, Facebook, some positive and others not. After we consider these aspects in a practical case, we will give our personal opinion regarding the use of a social network in education, however the reader may draw his own conclusions from this exposure and use as he like the framework develop by the authors.

2. Proportional Evolution: Education and Society

The last few years have been really significant in terms of technological evolution of our society.

The teaching-learning process was, over time, mutating, evolving, adapting, and always considering the changes occurred in contemporary society. Teaching, generally, reflects the society, but, in a particular way, the teaching process presents the individuals *modus operandi* that live in this society and the available resources.

Teaching in any room whatever the content, Mathematics, Languages or even Sciences, it is not a process that should always follow the same guidelines or be a part of structural or contents changes, given the important changes observed in recent years in this regard. The emergence of computers and other more recent technological tools, as smartphones and tablets, pave the way for a world so vast and diverse, presenting fruitful possibilities of acquiring information and other situations that belong to a dimension more futile, regarding the veracity of the subject observed. One of the major implications of the rapid development of these instruments was the enlargement of the normal context of what is a classroom. Defining classroom could be more difficult than before, because this is not the only place educator must have as exclusive to teaching-learning process: nowadays, it should be given the chance to the students to have access also at home, or anywhere, to direct support by the educator and even by their own colleagues.

Aware of this trend, educators were adapting. Initially, somewhat slow, just using the computer for smaller jobs; more recently, the exploration of internet connections and, as a consequence, the use of resources obtained through this means. As such, in this vast ocean of knowledge accumulated, it becomes essential to understand the possible choices for a better understanding, so that subsequently we can better understand what to do and how to do it.

Introducing the specific area of mathematics, there are many available software, author or freeware, however, the vast majority have closed structures. Other possibilities such as dynamic geometry software, intend primarily for

the specific area of geometry, either in 2 or 3 dimensions, presenting itself, therefore, as a tool with a single objective, i.e., reductive. Nowadays, saying that it is possible to teach differently in a math class is complicated and does not truly define “differently”, because there are few changes from a normal process of teaching. Besides these factors, there is another, probably the most important: the interaction of the student with this kind of technology and software. Students are not always motivated to work with these tools, making this a key aspect for the presentation of new technologies in the context of the teaching-learning process. The motivation, essential, whether in a traditional classroom exposure of content, either in a class that makes use of the technological elements, it is imperative factor for success.

In recent years, there has been an enormous increasing in the use of social networks by learners of all ages and not only. Numerous sites on the Internet were presented, and some succumbed to the same speed that appeared while others resist and continue to reinvent themselves to the rhythm of society and its demands.

Given these innovations, the need arises: teachers have to question themselves as educators of future active citizens about what kind of changes can, and should, be done in the teaching-learning process, inside and outside the classroom (physical), so that it can quickly integrate the web technology in which society is intertwined:

- What will be the primary concern of the use of social networks in the teaching process?
- It makes sense to use this in the context of formal classroom and beyond?
- When can social networks be used in the process of teaching?
- How can it be used?
- What are the advantages and disadvantages that can be identified before and after using it?

Regardless of the resources or tools used in the teaching-learning process, since the sheet of paper up to the latest technologies, the teacher should focus primarily on the student. That is a teacher main function: to be the link between student and knowledge, keeping the students interested and awakening them to the importance of knowledge.

If we consider the process of teaching as a scheme, we can say that the teacher should seek the point equidistant between himself, students and knowledge. (cf. Figure 1).

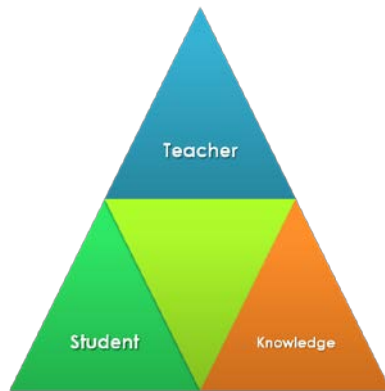


Figure 1 – Teaching Process

Of course this demand is not static and is always dependent on the society's ebb and flow in the search of progress. Educators should therefore incorporate in this scheme new tools and processes that society offers.

But sometimes changes to the normal processes of teaching and learning, which are already rooted and embedded within the educational community, are difficult to realize and fully fit. Tools such as social networks can bring something new in the process of teaching and learning, not only in terms of knowledge transfer, but as a motivational tool for the student.

The motivation for teaching and learning these days is a daunting task for the teacher. He is required to fight a battle with panoply of distractions constantly entering the environment of the classroom. This way, the observation of the group or student in particular presents itself as a fundamental initial step in the activity of the educator. The interests of the group of learners can be combined with the motivation process and therefore important to the process of teaching and learning. Having as a starting point a particular interest, as the taste for a particular content or use a known and appealing way, that is part of its range of entertainment activities daily, such as social networks, to address or consolidate new concepts, will make the student feel more integrated and predisposed to participate in the activities that are proposed.

In this way, and relying on recent studies in Portugal (WIP, 2010) and that can easily serve as a guide for other countries, we find that a large number of students use and interact with social networks.

According to the study, 63% of the Portuguese population between 15 and 34 use the internet. Thus, in any of social networking sites analysed users with quantitatively higher expression are the youngest and, conversely, the number of users is more restricted in the older age group. It is possible to say that in sites like MySpace (51% of

users in this age group) and Twitter (50%), half of the users are under the age of 25 years. The Hi5 and Facebook have less than half of users under the age of 25 years, but still a strong representation of this age group (45.8% and 42.3%, respectively). Orkut is the social network with greater presence, in relative terms, of subjects aged 25 or more. In this network, there is closeness between the numerical ranking of 15 to 24 years (37.5%) and the next phase - 25 to 34 (31.3%), as it is possible to see in the table below (cf. Table 1).

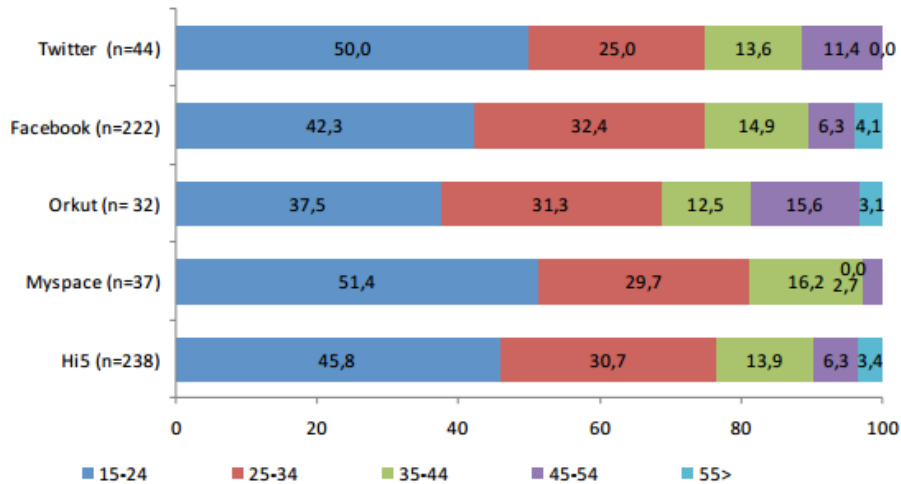


Table 1 – Social Networks in which people have created profile (WIP, 2010)

Analysing these data, given the increasingly high use of social networks by students, it seemed pertinent to authors to present a model that could be consistent with this reality: the use of social network integrated in the model of teaching and curricular structure of a subject.

Thus emerged what the authors called Hybrid Model Guide (HMG), in an attempt to present another possible bridge between the student and the knowledge.

3. Defining HMG

The main idea was to motivate students through virtual networks available on the internet where they are already fully integrated, having with it a constant daily connection. In this way, the authors recommend the use of tools that are part of the normal daily tasks of students but with disparate features of what is already known and

currently used in educational. The fact that the vast majority of students has smartphones and computers with internet connection makes the student a constant element of the virtual world that surrounds and absorbs us.

The HMG is a model that seeks, as already noted, the link between the student and the knowledge in a more natural way, as demanded by the contemporary society. It consists in the access to information/knowledge through social networks, widely used tool by students of different age groups.

Before clarifying the *modus operandi* of this model, it is important to define what usually we call as a social network.

A social network is a social structure consisting of individuals or organizations, connected by one or more types of relationships, which share common values and goals. One of the key features in the definition of networks is their openness and porosity, allowing horizontal and non-hierarchical relationships among participants. For being a social connection, the fundamental connection between people occurs through identity. The boundaries of networks are not boundaries of separation but boundaries of identity. It is not a physical limit, but a limit of expectations, trust and loyalty, which is permanently maintained and renegotiated by the communications network. Online social networks can operate at different levels, for example, social networks, which are the most important for this study. (consulted in http://pt.wikipedia.org/wiki/Rede_social, October, 15th, 16h58m).

This way, the authors defend the use of a social network which presents itself as a transversal way of learning (cf. Figure 2).



Figure 2 – Hybrid Model Guide

This figure clarifies HMG and its essential elements: the teacher, the classroom, the social network and the student. None of this elements can be put aside of this methodology, or else it would not make sense.

The teacher continues as a fundamental and indispensable element in the process. It stills belong to him mediating role. The classes, represented here by "classroom", ensure to the process its socializing dimension and explain the feature "hybrid" of this model, i.e., it is not presented as a reductive entity, focusing only on lessons in the classroom but extending them through new processes and means, in this case, the social networks. The social networks, interest focus of the students show up as an asset on the teacher-student relationship, being one more common point between the two, in which the student feels particularly comfortable.

The normal discipline curriculum is defined through subjects and areas divided separately. Each one of them will provide the student specific objectives and competences. So our idea was to use a social network (Facebook) during a semester in a discipline, defining goals along the subjects. Every week the teacher gives some practical exercises and other type of information in a close group created for the effect. This kind of work was not considered by the students as homework in the normal way. So most of them usually give answers and comment to the questions that were putted in the area without afraid of being wrong or somehow giving an answer that were not so correct. One interesting part of this, since the group it's all the time open for answers and questions at any hour during the day and night, was that when the teacher goes to check regularly what is going on, some students already give their own idea about the answer of their colleagues. Sometimes trying to correct, or explaining why they think it's wrong, stating their opinion. Other times giving examples that deny the colleagues affirmations. In mathematics, for example, this kind of thinking it's very important, the counterexample. Using a social network could also create situations that teacher uses to explain some concepts. The classroom it's supple by the outside effects and vice-versa, so the regular use of a social network during the semester could prolong the classroom space. Off course the role of the teacher it's still very important, checking the answers and acting as a coordinator of all the process. As we said before, the teachers still have a great importance in the overall process. His knowledge is still the most important part of all situations that are created during the use of the social network.

The evaluation of this situations its easy configure, the teacher that follows the works done in the close group can evaluate the efforts that students do along the semester. Also the written evaluation shows to the teacher, that the sharing in the social network could give deepness to some concepts. The evolution of conversations and discussing about videos, files or just affirmations are also proof of students' involvement in their own knowledge.

4. Characterization of study case

The authors applied this model to the curricular guidelines of a subject of higher education course in Portugal. This case study aimed at examining the relationships that are created during this interaction, later to be able to lay the roots for something deeper and that could be perceived as an international network of knowledge with the backdrop of the use of social networks.

The studied group was composed by 34 students. 85.3% of them were female, percentage corresponding to 29 individuals, and 14.7%, 5 elements, were male. All of them had computer and 94.1% (32), had internet connection.

From the 34 students, 50%, 17 individuals, considered to be knowledgeable regarding the use of computers. As relates to the use of social network study, 15 elements, 4.1%, it is able to develop a good use of this tool. Yet, 2 elements don't believe in their social network abilities, classifying their ability with "bad". Still, 7 people believe they have a good performance and 1 element claims to be excellent.

This small group of students were using for an entirely semester a social network, Facebook, apart from the normal classes. The teacher were giving information and coordinating the answers from the group users, validating thoughts and interacting with them. We should say that not all the students were regular users, considering regular as a person who interacts every day minimum, but from the study, and ending of semester with the curricular evaluation, we feel that part of the results are due to the used of the social network.

The situation that we lived brought us visions of what could be another interesting teach and learning process, with the use of a social network.

5. HMG: Advantages and Disadvantages

One of the advantages that authors found in the use of HMG model, instead of the current models that are based on static and, especially, by placing documents in virtual platforms created as repositories documentary, is the ease of use by students. The fact that the online connection online is so high, becomes the content sharing something natural, effective and accessible anywhere and anytime. The high percentages of students who use these social networks are perfectly familiar with the various systems of the different networks. For the few who do not have frequent user experience, these software turn out to be intuitive to use, being not necessary profound explanations.

Another great advantage is, as previously mentioned, the motivational factor: the realization of a job or even clarify questions about content through any social network may arouse greater interest in the student's own task performance.

Speaking about students with special academic situations, this methodology can constitute a great support in their academic courses. Working students with schedules incompatible with academic time, students with chronic illnesses requiring successive fault or even if they are unable to attend classes, can have in this methodology an added advantage, since, more easily, are aware of the contents worked as well as subsequent analysis which can be done using the network established for the purpose. As such, HMG may contribute to the personal achievement of the individual, allowing him to be aware of what is being presented in the study of a subject and generally extend the analyses and discussions that take place in environment room, both in space and in time.

Regarding the disadvantages that might be pointed to this type of methodology refers to the fact that socialization can be affected. However, the authors cannot but remember that this is a hybrid model, not totally dismissing the classroom, continuing to assign to them the intrinsic importance, being truly indispensable to the development of each ones personality, as well as the integration of teach element in the group. Furthermore, the promotion of group work with this method is an essential issue and must often be stimulated, this being a practical easily performed. The Educator is an essential link in HMG process.

Another possible disadvantage it would be the so called "danger" of publication personal data on Internet and the consequences that this action might entail. Actually, this did not constitute "danger", since many of the groups created within these social groups can be closed. The working group used in this experimental study was "closed", i.e., only previously selected people are allowed to be part of these groups and, as such, only these people had access to the information available in there.

In this way, it can be inferred that the use of social networks in the process of teaching proved itself a privileged tool in school-social context, being the biggest reason for such success that this tool be intrinsically linked to the daily lives of our students, as well as their personal interests, constituting therefore as a motivational element. Therefore, teaching-learning and social networking, instead of constituting dichotomous poles, present themselves as elements of an educational continuum, in which both dimensions may, according to the intentions of actors want to achieve the same goals.

6. Conclusion

The Internet is part of students' lives and even themselves have already set up their space in this vast environment. Thus, they drive at the speed of technologic evolution to more flexible, interactive and timeless lifestyles making use of social networks for participation, sharing and reporting information. So, these are dimensions that are based on the pursuit of knowledge, of information, so the pedagogical perspective should be extended, allowing students an active participation in the teaching-learning process and a role as co-producers of

the contents, presenting itself as a participatory, social and supportive process, regarding the interests, goals and needs of individual students (McLoughlin et al., 2007).

Being the social networks an emerging technological tool with positive results in the social field, it is assumed that its efficacy is greater when social networks start to be used actively in the educational field.

Our study case show us that the line between the use of new technologies and the teaching process it's very small and could be diminish with the use of social networks.

Being connect everywhere, at every hour, at every minute, it's a normal situation for the students of the future, our students!

We should always look for the best learning process, adapted to the class that we have in the present moment. For that, we need to be always aware of the large possibilities to drive the learning through different ways.

Which will be the ultimate process, which will be the optimum way to do it? There isn't a final answer, only the will to do it as a conscientious transmitter of knowledge. Everyone should try to seek options, test it and analyse the effects. Social networks are getting an extreme importance in our daily life, all across the world, are we capable to deal with this?

Getting to the end of this article we answer to some of the beginning questions, others not. So we left with another series of interrogations, meaning that investigation it's not always finish.

Investigating lead us to more investigation, the path is not always done, especially in the field of education.

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Social studies teacher candidates' views on the community service practices course

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Abstract

This study aimed to determine the views of social studies teacher candidates that were enrolled at the Faculty of Education at Sakarya University on the Community Service Practices (CSP) course. The study benefited from qualitative research methodology and the participants were selected using purposive sampling. The data collected through semi-structured interview forms were analyzed through descriptive analysis method. The results of the study indicated that Social Sciences teacher candidates were not well informed about the aim of the course. Half of the teacher candidates believed that the aim of the course was not completely realized. The most common issues faced during the practices were stated to be obtaining permission to visit the institutions and the institutions' attitudes towards the students. The teacher candidates learning how institutions function and what they do not know about real life are willing to transfer these experiences to their students. In order for the course to be conducted efficiently, the teacher candidates request that the necessary permission to visit institutions be obtained by their universities, that they can visit different institutions, and that a financial source be provided for this course.

Keywords: Community Service Practices, Social Studies Teacher Candidates, Social Responsibility, Teacher Education

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Introduction

The CSP course helps students use their social problem solving skills using their academic knowledge. In our country, the foundation of this course is based on the method of environmental analysis that Cavit Binbaşı developed in the 1950s. According to this method, students analyze the environment to determine problems. Moreover, they contact the authorities to solve these problems. Thus, students become active to solve problems (Coşkun, 2009). When we consider the development of the course in the United States, it is seen that CSP activities are included at all levels of education, from kindergartens to universities. However, it is observed that there is not a precise definition of the course in this country (Avaroğulları, 2009).

The CSP course, limited to a single semester and conducted outside the classroom in practice, has been offered as a compulsory course in all programs of faculties of education since the beginning of 2006-2007 academic year. Teacher candidates must reserve at least one day a week in order to perform the activities as specified by CSP. It is aimed through this course to lead teacher candidates to adopt behaviors sensitive to social developments through helping them become entrepreneurs in other institutions and enterprises (Coşkun, 2009). Moreover, through this course, teacher candidates are expected to develop projects that will provide solutions to the current problems of the society. Within the scope of the course, teacher candidates are encouraged to take part in scientific activities such as panels, conferences, congresses, and symposiums and act as organizers in these activities. Teacher candidates gain experience with this course that will help them socialize with the society (Sönmez, 2009). The CSP course is included in the school curricula in order to reinforce students' participation in democratic and social activities. Students learn through active participation in this course (Ohn & Wade, 2009). Efforts should be made to develop students' civil responsibility and morality of social responsibility in the countries ruled by democracy. The CSP course including social sensitivity contributes to individuals' engagement in activities as informed citizens. The activities of this course are built on strengthening individuals' bonds with the society (Coşkun, 2009). The activities done throughout the course aim to develop teacher candidates' awareness of social responsibility by supporting the skills of social responsibility and awareness, cooperation, solidarity, effective communication, and self-evaluation (Sönmez, 2009). CSP practices should be group-oriented, and students must provide concrete and visible products. This course should be built on social issues perceived by students to be important in real-life and students should be encouraged to gain experience in these issue. When mutual learning and communication between the school and the community are allowed, CSP provides a mutual positive development of relations (Keith, 1997). This indicates that the activities done in this course are intended to lead students to form a coherent and comprehensive change.

This study determined Social Studies teacher candidates' views on the CSP course. In this study conducted through using qualitative research methodology, the participants were selected using purposive sampling and the data collected through semi-structured interview forms were analyzed through descriptive analysis method.

METHODOLOGY

Research Design

Qualitative research method was applied in the study to determine Social Studies teacher candidates' views on the CSP course thoroughly. In qualitative research, through the qualitative data collection methods such as observation, interviews, and document analysis, perceptions and events are handled in a natural environment as a holistic and realistic way (Yıldırım & Şimşek, 2005).

Participants

The participants of the study included Social Studies teacher candidates enrolled at Sakarya University. Purposive sampling was used to determine the participants. In this vein, the participants were selected from the

Social Studies teacher candidates that took the CSP course. The participants included equal numbers of female and male Social Studies teacher candidates. In accordance with the research ethics, the participants' real identities were kept strictly secret and the participants were given a nickname, ranging from Participant 1 to Participant 10.

Table 1: The demographic information of the participants

Pseudonym	Gender	Year	Training
Participant1	Man	21	Social Studies Teacher
Participant 2	Man	21	Social Studies Teacher
Participant 3	Man	23	Social Studies Teacher
Participant 4	Man	20	Social Studies Teacher
Participant 5	Man	21	Social Studies Teacher
Participant 6	Girl	20	Social Studies Teacher
Participant7	Girl	22	Social Studies Teacher
Participant8	Girl	25	Social Studies Teacher
Participant 9	Girl	22	Social Studies Teacher
Participant 10	Girl	20	Social Studies Teacher

Data collection and Analysis

The data were collected through the semi-structured interviews conducted in May in 2013. Through these interviews, it was aimed to obtain in-depth information from the teacher candidates. Expert views were obtained during the preparation of interview forms. The questions that were prepared in line with the aim of the study and used in the semi-structured interviews are as follows:

- 1- What are the Social Studies teacher candidates' perceptions about the aim of the CSP course?
- 2- What are the Social Studies teacher candidates' views on the problems faced in the CSP course?
- 3- What are the suggestions as put forward by the Social Studies teacher candidates in order to better conduct the course?
- 4- What are the Social Studies teacher candidates' views on the contribution of the CSP course to their profession?
- 5- What are the Social Studies teacher candidates' views on the contribution of the CSP course to their personal developments?

FINDINGS

The Social Studies Teacher Candidates' Views on the Aim of the CSP Course

The majority of the participants provided limited statements regarding the aim of the CSP course. They stated that the aim of the course was to know about institutions, to enable them to serve the community, and to write

reports on the institutions that were visited. The perceptions as provided by some of the participants are as follows.

Participant 1 provided the statement that "*Seeing how people are and act accordingly when they are in a difficult situation*". Participant 2, Participant 3, and Participant 9 provided similar statements and stated that the aim of the course was to obtain information on how some institutions functioned. Participant 8, pointing out that the aim of the course was to raise social awareness through knowing about institutions, said that "*To increase our sensitivity to the society. We have seen many things*". This participant provided a more comprehensive view regarding the aim of the study compared to other participants. Similarly, Participant 5, with the statement "*To observe the service provided by the institutions on behalf of the society. To present what we have seen as a report to our lecturer*", reported that the aim of the course was to observe the institutions and to write reports based on these observations. The teacher candidate, Participant 1, saying that "*To help other people and to enable us to gain experience*", explained that the aim of the course was to help people and talked about a practical activity. Participant 4, thinking in a similar way with participant 1, pointed out that the aim of the course was to serve the community. Similarly, Participant 7 also claimed that individuals would be useful for the community through this course, saying that "*To be useful for the community, in other words, lead people that are not productive by themselves like us (...) to this direction*". Participant 6 said that they participated in various activities without being informed about the aim of the course. Regarding the issue, Participant 6 expressed that "*The aim of the course, as far as I understand, is to do something for the people around us*", which indicates that there is some uncertainty. Participant 10, on the other hand, added some meaning to the course beyond the institutions, saying "*To help people see what they do not want to see*", which is quite different from what other teacher candidates say.

Half of the participants are of the opinion that the aim of the course is realized. However, Participant 2, Participant 3, Participant 7, Participant 8, and Participant 9 think that the aim of the course is partially realized. Regarding this, Participant 2, through the statement, "*We only took photos. Some just take some photos in front of the door and then come back.*" indicated that the aim of the course just became a formal procedure, rather than knowing about the institutions or serving the community. Participant 3, pointed out this situation with the following statement, "*When we visited the institutions, there was not any communication in person. We could not get answers to our questions, for instance.*" Participant 7 expressed that some of the lecturers were just interested in whether the students visited the institutions while grading and said that "I think it is wrong to grade just have us look a few photos. In this regard, the aim seems not to be realized". Participant 8 expressed how some institutions were indifferent to them saying that "*When we went to the nursing home, we did not meet any employee. Furthermore, we were ignored.*" Participant 9 stated that it was necessary to have follow-up courses to realize the aim of the course, saying that "*If we had been offered more similar courses, the aim of the course could have been realized.*"

The Social Studies teacher candidates' views on the problems faced in the CSP course?

The Social Studies teacher candidates were asked about the problems that they faced in the CSP course. In line with the responses obtained, the most common problems faced by the teacher candidates in this course, as indicated in Table 1, are found to be due to the deficiencies in the procedure and the institutions' attitudes towards the students.

Table 2: The Problems that the Social Studies Teacher Candidates Faced in the CSP Course

The problems faced	Participants
Not being allowed to take photos	Participant 2, Participant 3,
Financial problems	Participant 2, Participant 7,
The problems related to the institutions' attitudes towards the students	Participant 3, Participant 4, Participant 5, Participant 9
The difficulties caused by the procedure (getting necessary permission)	Participant 6, Participant 1, Participant 8, Participant 10
The problems caused by group harmony	Participant 10
Shortage of time	Participant 7

Some of the teacher candidates expressed the problems that they faced in the CSP course as follows. Participant 2 explained that the problem faced in the CSP course was due to both the institutions and the financial means, saying that *"We were expected to take photos as a requirement of the course." However, we were not allowed to do this. The child protection agency was too far away. We spent a great amount of money. Students need to be supported finally.*" Similarly, Participant 7 complained about the financial difficulties, expressing that *"There were difficult times in terms of financial means. We had problems as we did not have time.*" Participant 5 pointed out the problem of the institutions' attitudes towards the students, saying that *"In child protection agency, particularly, in the rehabilitation center, the parents did not want us to observe their children."*

The Suggestions as Put Forward by the Social Studies Teacher Candidates in Order to Better Conduct the Course

The Social Studies teacher candidates were asked what they could suggest to improve the CSP course. As can be seen in Table 3, the teacher candidates suggested that there should be visits to various institutions to improve the CSP course. The visits to different institutions such as kindergartens and governor's building are stated to be included in the list of activities. Moreover, the teacher candidates request that the necessary permission to visit the institutions be taken by the university in advance not to face any problems.

Table 3: The Suggestions as Put Forward by the Social Studies Teacher Candidates in Order to Better Conduct the Course

Suggestions	Participants
Lecturers and Teacher candidates should visit the institutions together	Participant 1
Financial support should be provided for the course	Participant 2, Participant 7, Participant 3
Institutions should be informed about the CSP course	Participant 3
There should be visits to various institutions	Participant 4, Participant 5, Participant 10
The university should obtain the necessary permission	Participant 6, Participant 4, Participant 8
Activities that will provide solutions should be organized	Participant 9

Some of the suggestions put forward by the Social Studies teacher candidates to improve the CSP course are provided as follows: Participant 7 suggested that the activities should not be based on financial means saying that *"It would be good to have some financial means. However, if not, the activities should not be based much on financial means."* Similarly, Participant 3 pointed out the financial problem, expressing that *"We visited the institutions through our own efforts. We had some problems."* Participant 9, on the other hand, suggested that activities should be *"planned so that they provide solutions to the problems and efforts are necessary to do so."*

The Contribution of the Social Studies Teacher Candidates' Experience through the CSP Course to Their Professional Lives

The Social Studies teacher candidates were asked how they would benefit from the experience that they gained through the CSP course. As indicated in Table 4, a great majority of the teacher candidates, particularly female teacher candidates, want to visit the institutions together with their students so that they also benefit from the experience that they have gained through this course. Some of the teacher candidates, thinking that their students would be those that stay in the Child Protection Agency or the Rehabilitation Center, stated that they would be more sensitive to their students.

Table 4: The Social Studies Teacher Candidates' Views on the Use of Experience that They Gained Through the CSP Course in Their Professional Live

Using the Experience Gained through the Course in Professional Life	Participants
Not Being Biased Towards the Students	Participant 1, Participant 6, Participant 9
Transferring how institutions function to students	Participant 2, Participant 5,
Visiting institutions together with students	Participant 3, Participant 4, Participant 7, Participant 8, Participant 10

Of the teacher candidates, Participant 1 argued that this course would lead teachers not to be biased towards their students, saying that *"I will not judge my students immediately, for instance. Perhaps, they do not have any parents."* Participant 5, on the other hand, stated that s/he would lead his/her students through the knowledge acquired in this course, saying that *"I can at least lead my students when they need advice. We did not have time."* Participant 8 noted that s/he would like to do the activities of this course with his/her own students, expressing that *"I can do similar activities with my students. A visit to a nursing home, visiting the elderly on special occasions, during feasts, for instance."*

The Contribution of the Experience Gained by the Social Studies teacher candidates through the CSP Course to Their Personal Lives

The Social Studies teacher candidates were asked how the experience that they gained through the CSP course was reflected in their personal lives. The teacher candidates that visited institutions such as child protection agencies and nursing homes for the first time in their lives stated that they would like to visit these institutions regularly expressing that they were affected by what was experienced in these institutions. As can be seen in Table 5, some of the teacher candidates believed that the course proved to be useful to them as they had the opportunity to visit the institutions whose names they had already known but about whose internal structures they did not have any ideas.

Table 5: The Social Studies Teacher Candidates' Views on the Contribution of the CSP Course to Their Personal Lives

Using the Experience Gained through the Course in Personal Life	Participants
Have respect for the elderly	Participant 1, Participant 3,
Being beneficial to the community	Participant 1, Participant 6,
Knowing about organizations previously unknown	Participant 2, Participant 4, Participant 5, Participant 8
Visiting institutions regularly such as Nursing Homes and Child Protection Agencies	Participant 3, Participant 6, Participant 7, Participant 8, Participant 10
Not being biased towards people	Participant 4
Learning the facts of life	Participant 9
Ensuring socialization	Participant 1, Participant 10,

Some of the teacher candidates' views are as follows: Participant 3 expressed that *"I think they need love. I think that I will visit them at regular intervals."* Participant 6 also stated that s/he would like to visit the people in these institutions in the rest of his/her life, saying that *"When I went there, Child Protection Agency, I was deeply affected. It was the same while I was in the nursing home. I will absolutely visit these places later. I think so."* Expressing a different view, Participant 10 stated that the course provided him/her with the opportunity to socialize with other people, saying that *"I have absolutely socialized with other people. I have been here for two years and have not engaged in any social activity"*. Similarly, Participant 1 pointed out the contribution of the course to his/her socialization, saying that *"I am not that much social. We had the opportunity to socialize with the community."*

Findings and Results

The great majority of the teacher candidates stated that the aim of the CSP course was to know about the institutions and obtain information on how these institutions functioned. However, in the study conducted by Keleş and Aydın (2011) in order to determine Science Education teacher candidates' views on the CSP course, the teacher candidates stated that the aim of the course was to identify problems, to find solutions to these problems, and to be responsible citizens. In the current study, the Social Studies teacher candidates' participation in the CSP course was limited to visiting the institutions that serve the community. The teacher candidates obtained information about the institutions that they visited. However, it was observed that the individuals did not participate in the voluntary activities in the institutions such Child Protection Agency and Nursing Home. This indicates that the activities are conducted fast and superficially. In order to conduct this course effectively, teacher candidates are required to make necessary efforts to find solutions to social problems. It is seen that the most common problems that teacher candidates faced during the practices are the problems caused by the institutions' attitudes towards the students and the financial means. It is seen that the similar results were obtained in the study conducted by Uğurlu and Kral (2011). The teacher candidates state that the CSP course is

beneficial to them in terms of professional and personal life. Similarly, in the study conducted by Erkan, Uludağ, and Burçak (2012), the most commonly agreed item as expressed by the teacher candidates related to the CSP course was determined to be the view that this course would contribute to their professional lives. The teacher candidates stated that they would not be biased towards their students in their professional life through this course which they were enrolled at saying that the experiences they gained would be useful to them. Acquiring information about how institutions function and having the opportunity to closely observe the facts of live, the teacher candidates would like to make these visits a routine part of their lives. This indicates that that the course has been useful to the teacher candidates.

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Social work education from distance

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Abstract

Living conditions has changed as a result of historical, socio-economic, political, and technological developments. To control this conditions, to protect and to empower the isolated people are aims of social work which identifies itself with the principles of human rights and social justice. Social work is an applied science was a volunteer and charitable activity later showed a development path as being a profession and a science discipline in the last century. It's educational organization has an important role in the path which is from voluntary social work activities to professionalism and being a science discipline. Social work education has important developments in Turkey since 1961, the year of initial education. One of these developments is distance education applications. In this study, distance education applications in the field of social work in Turkey will be discussed.

Keywords: education, social work education, distance education

1. INTRODUCTION

The internal dynamics (the establishment of the Ministry of Family and Social Policies) as well as the effect of external dynamics (the EU membership process) have emerged in the absence of adequate social worker in Turkey, and especially since 2009 have experienced a boom in the number of social work departments in universities. However, distance education has become a model used in social work with the request of many reasons such as the raising many social workers and the lack of trained social work academics. These developments strongly criticized by schools and leading academics in the area, based on the application of the social work profession has been suggested that the argument taught in distance. Despite this, with the reason of absence of adequate social worker, social work department within the Atatürk University Faculty of Open Education has been established at the undergraduate level in 2011. This program's coordinators have not any social work degree and they see social work as a volunteer, religious and charitable activity. In this study, recently started to be implemented in Turkey, distance social work education programs will be discussed.

Distance Education in Social Work

Technological improvements in all areas of human life (education, health, social services, etc.) in line with the changing needs of the diversified services offered. Technological advances in society, changes in economic indicators and in line with population growth, the provision of educational services has become a necessity

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searching for a more efficient and effective ways. Because of these reasons, educational services that offered have taken a variety of applications. One of these applications is distance education. Thach and Murphy (1995), also claim that distance learning is spreading because of ‘advances in the technology, emphasis on cost-savings, and changing demographics.’ Peters (1998) suggests that persons participated distance education programs for several reasons:

1. They were denied the opportunity to attend regular schools to acquire the desired qualification,
2. They were poor and socially disadvantaged,
3. They were in ill health (due to the effects of industrialized labour),
4. They were incarcerated,
5. They lived in sparsely settled areas, too far from the university or other educational institution.

These changes in the field of education are reflected to the social work and the case of distance education has been one of the ways used in the teaching of social work. According to the Council on Social Work Education (CSWE), the accrediting body for social work programs, “social work education options have been expanded to offer a multiplicity of educational program designs, some of which qualify as alternative programs” (1994:111). In this context distance education has become applied and an accredited type of education in social work.

In Turkey, from 1961 until 2002, the only institution of formal education in social work was in Hacettepe University and then the second institution began social work education in Başkent University, 2002. In 2006, there was a large increase in the number of social work departments in different universities. This increase continues today. Today, there are 25 active, 35 passive and a total of close to 60 social work departments in Turkey. Only the Social Work Department in Atatürk University Faculty of Open Education has distance education at undergraduate level (4 years). The admission of students in the 2011-2012 academic years has started with 2.000 students.

Formal education, which is embedded in a four-year undergraduate social work education is maintained with both theory and practice aspects from a generalist social work perspective. The first two years of undergraduate education; such as sociology, psychology, philosophy, economics and law, basic social science courses are given and the last two years are directly related to social work theory and practice courses. Classroom environment is usually implemented in the framework of theory lessons on various activities (role play, group work, etc.) is performed. Although it varies from department to department, the practices are usually carried out in the form of block practises in the last year.

In this context, if we look at the ongoing social work degree program through distance education, basic social science courses is given to the first year like formal education. The second and third years of education, education paradigm is different. While formal social work schools have generalist approach this school has

method focused approach. Course materials are offered to students in a written format (Atatürk University, 2013). Students which in this system cannot carry out many practices which are carrying out in class environment in formal schools.

Discussion and Conclusion

Two pieces of social work education which are theory and practice are inseparable. On the other hand social work which has an eclectic knowledge base benefits from many branches of science. This base, enable holistic view to the social problems but on the other hand creates a compelling effect in education process.

In this context, bachelor degree first of all begins related social sciences lessons and then this education continues with the lessons about Fundamentals and problem areas of social work. Also studies related to practice are made in the theoretical side of education and integrity between theory and practice are tried to make by practice field under supervision process in the 7th and 8th semesters.

In order to good practice in the last year students should learn knowledge, skills and values of the science of social work. Student participation in practices that given in undergraduate education courses it is preparing students to practices area, also block applications that made in the next process, providing opportunity to students to use knowledge and skills they was learned in the process. Further, providing to the emergence of the connection between theory and practice in this process, this process allows to students learning roles and responsibilities of social workers.

The practice aspect of social work education at least as important as the theoretical aspect. Academic supervisors' (at the school) and advisors' (in the social work settings) knowledge and skill levels effect quality of the practice in the practice process as students' knowledge and skill levels.

Social work training process is much more complex than many other social sciences. Social work's eclectic based complex structure also exists in the social work practise settings. Social workers use lots of approaches belongs to different disciplines in their interventions and work together with many professional staff. Therefore the quality of professional practice, first of all directly related to the quality of education received.

Social workers expected to find solutions for complex problems of individuals should have multi-dimensional tasks. In 2011, within the framework of the Bologna process compliance capabilities that are based on the study commissioned by the YÖK (Council of Higher Education) indicated that social workers should use these tasks such to be able to import thoughts and solution suggestions about problems both written and orally, to listen thoughts, requests and expectations of agencies and organisations, to share thoughts with everyone who are related in the process of problem solving, to communicate in an effective way in an intercultural level (YÖK, 2011:5).

On the other hand by Australian Association of Social Workers (AASW) the purposes of social work are separated into six categories:

1. Upholding people's interests and rights
2. Working with individuals, groups and communities in the pursuit and achievement of equitable access to social, economic and political resources
3. Providing assistance to improve the well-being of clients. Clients are individuals, families, groups, communities, organizations and societies, especially those who are neglected, vulnerable, disadvantaged or have exceptional needs
4. Raising awareness of structural inequities
5. Promoting policies and practices that achieve a fair allocation of social resources
6. Acting to bring about social change to reduce social barriers, inequality and injustice. (AASW, 2010:5).
When we look at these objectives, we see the objectives for the benefit of people which are formed as basically working with other people and the human units.

Social workers are expected to have some basic skills to understand the structure in which the client, and to produce appropriate solutions to the problems.

While working with clients, the appropriate behaviours of social worker can increase the functionality of intervention, can help to maximize the contribution of the client to the process and the client who feels that he/she is understood can be easier to get out of the negative situation.

During the theoretical social work training the student to acquire the appropriate skills should be in social interaction and the training staff - student relationship should be established. Otherwise, the only theoretical knowledge of social work causes serious problems during the practice phase. On the other hand in the distance education process, student practices after theoretical courses that do not seem to be able to solve these problems.

From another perspective, the 2000 students admitted to the school each year to carry out a healthy student practice, functional analysis of institutions and organizations should be done in each province, as well as the staff and structural conditions, as well as the potential client groups' situation must be taken into account. Otherwise, the student practices after the theoretical undergraduate education are already not enough will not be very meaningful.

Parallel to the increasing number of social workers in Turkey should increase employment opportunities. Otherwise the sad results may occur. Looking at the last period, the number of social worker assigned to government institutions are decreasing and the scores increase. With the addition of 2000 more people in this

process will become very difficult to find work. If not taken precautions as soon as possible, unemployed university graduates will participate in one of the new ones.

After this distance social work education program number of social workers will increase but quantity of social workers issue is main concern and the quality issue is most noticeable. Social workers have a key role in clients' lives. For this reason these problems can effect client groups directly and the quality of the services offered can be reduced dramatically. On the other hand, in practice many ethical problems are likely to occur.

To get rid of these problems this program should stopped or by using the highest level of technological capabilities based on the interaction (online interactive) educational model should be adopted for some courses. Some of the courses must be taken on campus. Because social work is an applied science and cannot teach only via electronic books and tests.

In addition, in the evaluation process of social work education is often based on the creative student presentations, case studies and questions of interpretation. In evaluation total performance is measured. The test method used in distance education is not appropriate to the content of education in social work. In this process, evaluation and presentation format of lessons is not enough to be a social worker. To make qualified of this process, studies should be started as soon as possible and effort should be made to maintain the social work education completely via formal education.

Finally, distance education in social work is suitable for the philosophy of social work. Because of the principle of starting from where the client, the fact that education is a right for everyone, and is directly linked to the provision of access to education for disadvantaged individuals (Abels, 2005). However, social work education requires; a rich communication behind student- student and student- faculty member, theoretical education with practical applications in classroom environment, students receive a healthy supervision, development of social interaction skills are thought-provoking topics for distance social work education.

Social work profession to be learned exactly with the process of distance education in Turkey in social service agencies, depending on the quality of the professional activities will be reduced. With the quality of education, quality of service in the field of social services is directly related to each other. Increasing number of social workers will not increase the professional quality. Arrangements should be made very serious about social work bachelor's degree in particular.

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4th International Conference on New Horizons in Education

Special educational needs and evaluation

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Abstract

The Italian school is dealing with the matter of the evaluation of Special Educational Needs (SED). Since there are no legislative references that indicate which procedures to follow, it is left to the teachers' discretion. Recent ministerial documents, though, suggest to refer to the existing normative on Specific Learning Disturbances, in particular to prepare the PDP, and to use the necessary tools to reach the estimated requisites for the SED.

One of the main problems is still that of evaluation. Despite all the debates, even when evaluation is not used in a selective function it is not correctly used in an educational perspective, as a mean to teach, to improve the learning processes more than to penalize the results.

In the following work, we aim at indicating some evaluating tools and approaches useful in the delicate assessment activity of teachers, mostly intended in its educational value.

Keywords: evaluation, special educational needs, disabilities, ;

1. Introduction

The term "Special Educational Needs" came into widespread use in Italy after the enactment of the Ministerial Directive of 27 December 2012 "Instruments of intervention for pupils with Special Educational Needs and territorial organization for educational inclusion." The Directive itself gives a synthetic outline of the meaning, since the area of educational disadvantage is much broader than the one expressly referred to the presence of a deficit. In each class there are students who submit a request for special attention for a variety of reasons: social and cultural disadvantage, specific learning disabilities and / or developmental disorders, specific difficulties arising from the lack of knowledge of the Italian language and culture because they belong to different cultures.

The use of the Acronym SED therefore indicates a large groups of pupils for whom the principle of personalization of teaching, in accordance with Law 53/2003, must be applied with particular emphasis in terms of features, intensiveness and duration of changes. The ministerial directive is an important document because it gives a clear outline of the inclusive strategy of the Italian school. According to this document, in fact, the area of the educational disadvantage is much wider than that the one explicitly referred to the presence of a deficit.

The ministerial directive is a response to what is becoming increasingly clear: that is the steadily increasing number of pupils who submit a request for special attention. This paper concludes and completes the speech that was started in 1992 with the Framework Law 104 and continued with the L. 53/2003, L. 170/2010 and subsequent amendments for children with learning difficulties. In dealing with the speech on the discomfort and difficulty,

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the Directive moves the focus from the certification procedures to analyze the needs of each student and permanently extends the right to all those in need - and therefore the duty of all teachers – of customization of their educational project. The area of specific learning disabilities is extended to different problems such as: the deficit of language, non-verbal skills, motor coordination, attention and hyperactivity, intellectual functioning to the limit and the socio-economic disadvantage, linguistic, culture.

The attention that, in recent years, is placed to the SEN has the purpose of trying to remove all those obstacles present in learning pathways: this is made possible through the important activities of observation and careful reading of the signs of discomfort, dialogue with the family and the offer of adequate and personalized responses, all in order to promote the full inclusion of all students and their educational success.

The ministerial directive states that pupils are identified with special educational needs after the examination of the clinical documentation submitted by the families and on the basis of psycho-pedagogical and didactic considerations. Individual class councils can make decisions to enable them to use compensatory and dispensatory measures under the provisions already in place for pupils with specific learning disorders.

A very delicate and complex case is when teachers take the decision to communicate to parents that their child has a learning disability, suggesting a systematic evaluation of academic skills. Delicacy and complexity arise from the risk of hinting to the parents that their child is in a psychopathological condition. In some cases it is already known, but in most cases it is totally unexpected.

These considerations also arise from the fact that the term "developmental disorders" refers to the SEN and deficit of language, non-verbal skills, motor coordination, attention and hyperactivity (ADHD). Pupils with reduced intellectual potential, indicated generally by the expressions of cognitive / intellectual borderline or with "mixed specific developmental disorder", require special consideration.

Even if these particular issues are not covered by Law 104, the n.170/2010 on SEN represents a turning point in this direction as it gives a different interpretation to the concept of "educational care", suggesting the principle of personalization of courses set out in L. 53/03, with care of the pupils by regular teachers.

We should, therefore, identify those at risk of difficulties with tools and methods specific for each order of school; we need to upgrade and increase their specific requirements of learning or academic skills not related to those expected for each age and level of schooling. In this perspective it is possible to avoid focusing exclusively on the formal aspects of medical nature-based certifications and to develop customized programs. In any case, the focus is moved towards the educational level and the process of inclusion becomes relevant to the whole educational staff.

The latter directive, in fact, seen in a new light the inclusion model because it is directed not only to the students with certified disabilities, but also to those with conduct or attention disorders, those with language delays or with an IQ just above the limit.

2. Learning Environments

Pupils with Special Educational Needs live in a particular situation, which hinders their learning and development: this negative situation can be on different levels: organic, biological, or family, social, environmental, contextual, or combinations of these.

These situations, thanks to the work of other mediating factors of a personal nature and / or contextual nature, cause directly or indirectly obstacles or delays in learning processes. These difficulties can be global and pervasive as autism or more specific such as in dyslexia, sectoral as in language disorders and psychological disorders as mild or severe, temporary or permanent anxiety.

A very important aspect is the educational alliance with the family, marked by mutual agreement, with participation in the development of the IEP and PDP that are signed by the family for sharing, not just for acknowledgment.

An important role can be played by the family who is called to follow homework taking care of the child to perform the tasks, supporting the activities of study, accompanying him in the research and discovery of its modes and ways of learning, trying, along with him and the teachers, personalized and effective paths.

To implement effective learning environments in terms of teaching, but even more significant from the socio-relational point of view is important that teachers operate with unitary purpose and, simultaneously, cure attitudes and approaches that contribute to a positive construction of the student identity with SEN, through the creation of a positive environment in class, encouraging dialogue in all activities with their classmates in the class, stimulating and supporting intrinsic motivation.

It is also necessary that teachers act to build "learning environments" in which the student with SEN, feeling welcomed and heard to develop self-esteem and confidence in their abilities, to adopt positive attribution styles.

The teacher in his educational action should take into account an important prerequisite and that is what "works" for the pupil with SEN, it is equally effective for others, so in reorganizing its educational intervention he must necessarily activate and implement strategies useful for enhancing the strengths, as intuition, visual and creative thinking, and minimize those weaknesses as misspellings, memory deficits, executive sluggishness, fatigue, lack of autonomy in reading etc.

So the intervention of the teacher in order to facilitate learning could use primarily the visual and auditory canal. For the first you can take advantage of graphics such as diagrams, maps, pictures, movies and colors, in these cases a whiteboard is very useful, while for the hearing field you can resort to audio books, recordings, speech synthesis, digital textbooks. The teacher can also take some measures to increase working time for homework, exercises, tests, etc.. or reduce workload or even divide into several parts the verification procedures that should be predominantly oral.

Among the measures that could be adopted by the teacher, we suggest to begin the activity with a summary of the previous lesson, involving everyone with flash "warm up" questions or using visual and graphic brainstorming for orientate in information, creating a map of the lesson to be followed during activity. Or, also, varying actions and contents, developing the different abilities, so that everyone can find his own space, and encouraging motivation. Sometimes it might be useful to stop and make a synthesis of content; resume and repeat in different ways the most important concepts or frequently check if pupils follow or if the issue is clear. Another trick that the teacher can adopt is to prefer cooperative learning strategies such as provide recorded material to listen to the lesson or working in pairs, in which the cognitive abilities of the pupil with SEN can be expressed in interaction with their peers, that act as mediators.

Exclusive frontal lessons should then be avoided, as well as long explanations, copying from the blackboard, tests and corrections in italics or small fonts, highlighting the mistakes, separating classes and organizing them for level. Interactive lessons, reflections and sharing between the students should be privileged, as well as providing the photocopied material, not punishing mistakes but trying to locate only the cognitive processes and the underlying reasoning, and giving rewards.

3. Learning styles

Teachers should start from the knowledge of the mode of operation of the student with SEN to try to contain and overcome the difficulties, and to focus on their potential. To facilitate an individualized teaching that considers learning styles. In students with SEN, in fact, the disorder unconsciously affects learning style preferences, "forcing them to switch to other styles, that become favorites." The concept of "multiple intelligences" (Gardner, 2005): intelligence is a factor composed of different cognitive modes, which allows you to deal with and understanding of the reality. They vary from person to person, based also on cultural and environmental factors to promote effective learning. The teacher must know their learning styles and preferences,

as they affect his teaching method, and he should help students to explore the different learning and cognitive styles for a shared construction of knowledge.

Learning styles are characteristic cognitive, affective and physiological behaviors that function as relatively stable indicators of how learners perceive the learning environment, interact with it and respond to it (Keefe, 1979).

Stewart and Felicetti (1992) define learning styles as those educational conditions in which a student is more likely to learn. So learning styles do not affect the content of learning, but rather, on how he prefers to learn.

Teachers, therefore, should diversify teaching proposals, experimenting with different strategies, training the different access channels according to the way of learning of their pupils, using concept maps, engaging students to an oral exposure with visual support from the maps during interrogations, teaching the students multiple modes for each required task such as taking notes, studying a text, using bullet points, etc.. Furthermore, proposing multiple ways to gather information suggesting, for example, the use of different colors or graphics for different content categorization of the written text.

4. Learning assessment

For the evaluation of pupils with special educational needs, it can be said that there is no single criterion or tool, it is necessary, however, to adopt measures taking into account the characteristics of these students, such as, for example, evaluating more content, avoiding to consider spelling mistakes, bearing in mind that the student with SEN needs a longer time to complete homework. A teacher may assign less homework and keep in touch with the family in order to avoid stressful situations, not allowing them to carry other extracurricular activities.

Educational activities may be concentrated in class, in order to allow, for example, more time to organize thoughts and to complete the job. As already mentioned, the teacher should strive to identify strengths favoring those activities in which the student is good and supporting them.

Teachers should pay attention to the type and level of tests, for which it is appropriate to ensure that they have understood correctly.

As far as the objectives of the educational program, there are no exceptions for SEN except in cases where there are also disabilities. However, learning for the pupil with SEN is a great effort and is necessary, therefore, to ensure maximum freedom and flexibility to learning styles. The teacher in setting objectives must be sure that they are practical and realistic, and also check the adequacy of teaching materials such as reading with reference to the lexicon, the syntactic structure and the graphic impact. Very useful could be the use of a compensatory educational software, such as voice synthesis, digital books: many textbooks have a digital version, audiobooks, reading books on CD, digital dictionaries, specific software.

For the evaluation a very important document is the personalized learning plan. The school guarantees and explicit, towards pupils and students with SEN, educational interventions individualized and customized through the preparation of a personalized learning plan and also indicates compensatory and dispensatory measures, the customized forms of evaluation and assessment.

The document is drawn up by the class council or team of teachers and is agreed with the family, the privileged ally, which must actively participate in the educational project of the school.

5. Indicators for evaluation

For the definition of a correct approach to the assessment we may refer to a major report of the 'European Agency for Development in Special Needs Education in 2009, Development of a set of indicators - for inclusive education in Europe.

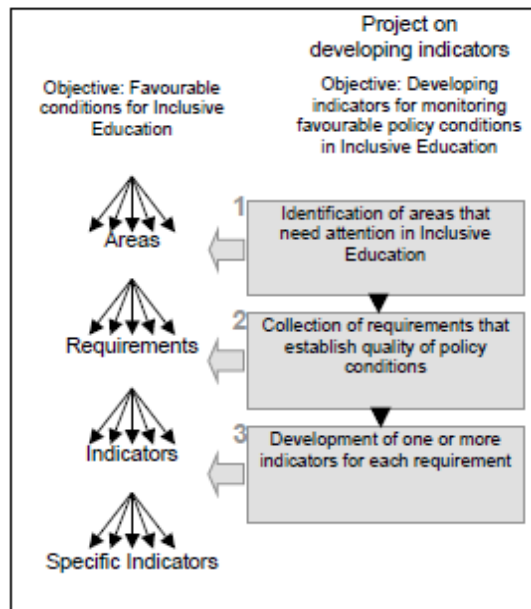


Fig. 1 - Development of indicators

The report identifies several areas within which there are the requirements and the corresponding indicators. For the assessment system of individual disabilities, the identification of the educational needs are considered important, as well as the systems of evaluation of teaching and supporting inclusion.

The assessment procedures should not be discriminatory. The original identification of the discomfort of the students should be conducted with a holistic approach and be based on the principle that teaching and learning are a common tool in the fight against discrimination. Finally, even the rules for the identification of disability should promote and encourage the educational experiences of each student.

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Special education practice at elementary level in European Union countries and Turkey

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Abstract

An individual goes on his/her development and education process started in family environment in educational institutions. The primary school age that forms the basis of achievements in the future should include arrangements based on equality of opportunity and access to education. The aim of this study is to examine in a comparative manner the school starting age of students with special requirements in Turkey and European Union countries and educational model applied, supports provided to students and classroom teachers, and the variables relating to other personnel. This study is a descriptive study aiming at determining the existing circumstances. In most of the EU countries integration, inclusion and separate training model for children with special requirements are applied together and as a whole in the primary school age. In addition, in the countries in which the integration and inclusion implementations are applied densely families are provided with family trainings, health, financial and transportation supports together with support to academic skills for school teachers, and guidance and training service for families in terms of behavioural management.

Keywords: elementary education, special education, elementary school, elementary institutions

1. INTRODUCTION

An individual goes on his/her development and education process started in family environment in educational institutions. The primary school age that forms the basis of achievements in the future should include arrangements based on equality of opportunity and access to education. Quality of training provided in this age in which an individual is getting accustomed to real life in terms of both social and emotional aspects differs for educational personnel and students. It is an obligation according to the law to support development of children with different developmental properties together with their peers; implementations relating to which may vary from country to country according to their educational policies (Sucuoğlu, 2006). All educational arrangements being carried out under certain program or not do have an influence of lives of individuals (Çelenk, Tertemiz and Kalaycı, 2000, 1). These arrangements vary depending on the development levels of countries and their economic, cultural, social and political status. Since the level at which individual requirements are met may be affected by the development level of society, quality of educational environments which take into account the individual requirements should be assessed according to the principle of equality of opportunity.

In our country, for the school year 2012-2013, each child who turns his/her 66th month (born on or before 31 March 2007) as of 30 September 2012 shall start primary school. Registrations for primary school are carried out

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automatically by use of the address-based database through e-school system. Primary school session is a process in which children's physical, emotional, social and mental developments are supported in an educational environment which is suitable for the children's individual properties and development levels. Since basic habits and mental skills quickly develop and take a shape in preschool and primary school age, integration programs that provide opportunity to each individual to receive training together with his/her peers and that are based on individual differences and equality of opportunity should be promoted and supported. Children who attended integration implementations in the preschool and primary school age showing more educational attainment in the future require arrangements for individual requirements to be taken in terms of health and accomplishments of next generations (Eripek, 1999; Jenkins, Speltz and Odon, 1989; Sucuoğlu, 1996). On the other hand, support provided to children and their families is an determining and essential item which bears the characteristics of primary education. Examination of cooperation-based services provided would have an influence on determination of quality benchmarks for primary education as well as enabling taking root and improvement of models based on the principle of equality of opportunity (Marcon, 1999; Pretis, 2009). Quality of education provided in preschool and primary school age forms the basis of social skills and academic accomplishments of children; which reveals the importance of support provided to children with several incapacities in terms of their social, mental, emotional and language development like their peers (Epstein and Sheldon, 2006; Marcon, 1999; Miedel and Reynolds, 1999; Pretis, 2009). Children with special requirements and showing different development process in comparison with their peers who receive education and training together with other students with normal development process have a chance to learn how to assist each other by being aware of their strengths and weaknesses (Batu and Kırcaali-iftar, 2005). Since the quality of support services are affected from the level of support provided to personnel in charge and families, and other implementations in addition to individual properties of students, the aim of this study is to assess existing regulations and arrangements in effect in our country and those in European Union countries used for students with special requirements who receive educational services at primary school level.

2. Method

The purpose of this study is to compare and analyze the elementary institutions that the students with special needs attend, the education model being implemented, education starting age, personnel number of the institutions and support services provided to the family. The study is a descriptive and aims to identify and define the present conditions. The data used in this study about the variables of EU countries and Turkey is obtained from Agencies of the European Union, European Agency for Development in Special Needs Education, Eurydice- Network on Education Systems and Policies in Europe, Eurybase-Descriptions of National Systems and Policies. The findings were retrieved by analyzing the countries' National Educational System Descriptions and the results were organized and interpreted with the use of tables.

3. Results

3.1. Elementary school education system and special education in Turkey

Eight-year compulsory education system has been in force since 1997 in Turkey. Educational services that had been carried out under the responsibility of two different bodies, general directorate of preschool education and

general directorate of primary school, until 2012 was assembled under the same roof of General Directorate of Basic Education in 2012. In our country, the age at which children compulsorily start school is 5 years and 6 months and it is essential that individuals with special requirements attend both preschool and primary school education together with their peers. Arrangements and measures to be taken for students with special requirements are of the responsibility of the General Directorate of Special Education and Guidance Services of the Ministry of National Education.

3.2 Elementary institutions, educational model and education enrollment age of students with special needs in Turkey and EU countries.

The findings regarding the elementary education institutions, educational model and education enrollment age of students with special needs in Turkey and EU countries are presented in Table 1.

Table 1. Elementary education institutions, educational model and education enrollment age of students with special needs in Turkey and EU countries.

Countries	Educational Institutions	Education Models	Start Age
Austria	<i>mainstream classes, classes with support teachers, co-operation classes</i>	mainstreaming	6
Belgium	mainstream classes, separate classes.	mainstreaming/separate	6
Cyprus	fully inclusive, special classes in mainstream school, segregated special school	mainstreaming/separate	4.8
Czech Rep.	fully inclusive, special classes in mainstream school, segregated special school		6
Denmark	fully inclusive, special classes in mainstream school, segregated special school	mainstreaming/separate	6
Finland	fully inclusive, special classes in mainstream school, segregated special school	mainstreaming/separate	7
France	fully inclusive, special classes in mainstream school, segregated special school	mainstreaming separate	6
Germany	fully inclusive, segregated special school	mainstreaming/separate	6
Greece	inclusion support units, segregated special school	mainstreaming/separate	5
Hungary	fully inclusive, segregated special school	mainstreaming/separate	5
Iceland	fully inclusive, special classes in mainstream school, segregated special school	mainstreaming/separate	6
Ireland	special or mainstream classes, separate special primary schools	mainstreaming/separate	6
Italy	fully inclusive, regular classes	mainstreaming	6
Lithuania	fully inclusive, special classes in mainstream school, segregated special school	mainstreaming/separate	7
	<i>mainstream classes, special education class special education schools</i>	mainstreaming/separate	4
Malta	fully inclusive, special classes in mainstream school, segregated special school	mainstreaming/separate	5
Netherland	mainstream classes, <i>special education class special education schools</i>	mainstreaming/separate	5
Norway	mainstream classes, <i>special education class special education schools</i>	mainstreaming/separate	6
Poland	mainstream classes, <i>special education class special education schools</i>	mainstreaming/separate	5
Portugal	mainstream classes, <i>special education class special education schools</i>	mainstreaming/separate	6
Slovenia	mainstream classes, <i>special education class special education schools</i>	mainstreaming/separate	6
Spain	mainstream classes, <i>special education class special education schools</i>	mainstreaming/separate	6
Sweden	mainstream classes, <i>special education class special education schools</i>	mainstreaming/separate	7
Turkey	<i>mainstream classes, special education class special education schools</i>	mainstreaming/separate	5.6

As shown in Table-1, the compulsory age at which children shall start primary school in European Union members states and in Turkey is between 5 and 7. In some countries this age interval may be delayed for one year for students with special requirements such as Sweden, Portugal and Poland. On the other hand, in Southern Cyprus, Holland, Italy, Luxemburg and Greece these children start receiving education in early stages together with their peers after relevant diagnosis. Educational system adopted by Turkey and EU member states for students with special requirements for the primary school age is the collective education-based inclusion and integration model. Individual differences and type/degree of handicap are taken into consideration for those with special requirements who are attending appropriate schools according to relevant educational model under the countries' educational policies. Inclusive educational model and supporting educational services are all rendered under general educational environments in Austria and Italy while in Turkey and many of the EU countries (such as Belgium, Czech Republic, France, Ireland, Spain, Iceland, Malta, Hungary, Poland, Portugal, and Slovenia) inclusion classes are provided at special classrooms in general schools or at special schools.

3.3. The personnel in elementary school institutions where students with special needs attend

The information regarding the personnel to provide service to students with special needs in Turkey and EU member countries is presented in Table-2.

Table 2. The personnel working in elementary school education institutions in Turkey and EU countries

Countries	Personnel										
	Family Care Specialists	Health Staff	Other Specialists	Physiotherapist	Special Edc.Teach	Psychologist	Language Specialist	Social Workers	Elementary teacher	Specialists counsellor (audiology)	Teacher assistant
Austria			√	√	√	√	√	√	√	√	√
Belgium	√	√	√	√	√	√	√	√	√	√	√
Cyprus		√	√	√	√	√	√	√	√	√	√
Czech Rep	√	√	√		√	√	√		√	√	√
Denmark		√	√	√	√	√	√		√	√	√
Finland	√	√	√	√	√	√	√	√	√	√	√
France	√	√			√	√	√	√	√	√	√
Germany		√	√	√	√	√	√	√	√	√	√
Greece			√		√	√	√	√	√	√	√
Hungary	√	√	√	√	√	√	√	√	√	√	√
Iceland		√	√		√	√	√		√	√	√
Ireland	√	√	√		√	√	√	√	√	√	√
Italy		√			√	√	√	√	√		√
Lithuania			√	√	√	√	√	√	√	√	√
Luxembourg		√	√	√	√	√	√	√	√	√	√

Malta	√	√		√	√	√	√	√	√	√
Netherland		√	√	√	√	√	√	√	√	√
Norway		√		√	√	√		√	√	
Poland	√			√	√	√		√	√	√
Portugal	√			√	√	√	√	√	√	
Slovenia	√	√	√	√	√	√	√	√	√	√
Spain	√	√	√	√	√	√	√	√	√	√
Sweden	√	√	√		√	√	√	√	√	√
Turkey		√			√	√			√	

In Table-2 information on personnel in charge of education and training of students with special requirements who are attending to primary schools. Personnel working at primary schools of Turkey and those of European Union member states share similarity in respect of training field while there are differences between them in terms of other field, in particular for speaking therapists, family care experts, physiotherapists, social work experts. In primary schools of Turkey the main responsibility is of student advisors, psychological advisors, classroom teachers, special training teachers while in many European Union member states (such as Austria, Belgium, Cyprus, Czech Republic, Denmark, Finland, Germany, Hungary, Portugal, Poland, Malta, and Luxemburg) relevant teams are composed of experts higher in number. In many European Union member states (Czech Republic, France, Hungary, Slovenia, Finland, Lithuania, Holland, Spain, Sweden) family counsellors, health experts, special pedagogists, physiotherapists, language-speaking therapists, sign language experts, aesthetic arts experts, information-technology experts, sports and music experts meet students with special requirements and their parents on certain days of a given week. Nevertheless, for the inclusive education model adopted by Turkey and EU states share similarity in terms of cooperation with special training teachers, classroom teachers, student counsellors and psychological experts.

3.4. The information about the support provided to families with children who need special education in Turkey and EU countries is presented in Table 3.

Table 3. Individuals with special needs and support provided to their families in Turkey and EU countries.

Countries	Counselling	Education	Financial	Family Education	Health	Public Travelling,	Transport, food	Teaching Material	Subsidised housing, electricity, telephone,	fuel, Special Support (Language, art)
Austria	√	√	√	√	√	√		√	√	√
Belgium		√	√	√	√			√		√
Cyprus	√	√	√	√	√	√		√		√
Czech Rep.	√	√	√	√	√	√		√		√
Denmark	√	√	√	√		√		√		

Finland	√	√	√	√	√	√	√	
France		√	√	√	√	√		
Germany	√	√	√	√				√
Greece	√	√	√	√	√	√	√	
Hungary	√	√	√	√	√	√	√	√
Ireland	√	√	√	√			√	√
Lithuania	√	√	√	√	√	√	√	√
Luxembourg	√	√	√	√	√	√	√	√
Malta	√	√	√	√				√
Netherlands	√	√		√			√	√
Norway	√	√	√	√	√		√	
Poland		√	√	√		√	√	
Portugal	√	√	√	√	√		√	
Slovenia	√	√	√	√		√	√	√
Spain	√	√	√	√	√		√	√
Sweden	√	√	-	√		√	√	√
Turkey	√	√	√	√	√	√		

As shown in Table-3 it should be noted that students with special requirements and their families benefit more from counseling and training services rendered. In most of the EU member states (Cyprus, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Luxemburg and Malta) it is a priority that migrant families and minorities and their children are enabled to get use of social benefits and bilingual children at their childhood and primary school age are considered individuals with special requirements. For these children at this age who receive language support, team studies are preferred in health and training environments concerning their special requirements. Regarding the primary school age, it should be noted that both in Turkey and EU member states educational policies are based on taking measures necessary to enable these children to benefit from equal opportunities like their peers with the understanding that health, education and counseling services should form an entire system.

4. Discussion and recommendations

In most of the EU member states inclusion, integration and separate education models are applied together for children with special requirements who are at the primary school age. Compulsory age to start school in Belgium, Czech Republic, Denmark, Austria, Poland and Portugal is 6 while it is 4-4,5 in Luxemburg and Southern Cyprus and 5 in United Kingdom and Hungary. In these countries individuals with special requirements start school at the same age as their peers. On the other hand, as of the preschool age both the individual himself and his family and classroom teacher receive supporting services. In European Union member states in which compulsory age to

start school varies between 4 and 6, employment of personnel who render services at different levels of education also differs depending on the needs and requirements of the said individuals. Special education supports in several countries such as Hungary, Lithuania, Luxemburg and Holland cover also the migrant and poor children and their families who suffer from social, cultural problems and language-related deprivations. However, it should be noted that in our country the level of supporting services rendered is not sufficient due to expert personnel working at the field of special training and education who are insufficient in number. In countries where concentrated inclusion and integration are applied families are provided with family trainings, health, financial, and transportation support while classroom teachers are provided with sufficient level of academic knowledge and skills and behavioural management (Czech Republic, Iceland). For children in Turkey who are diagnosed to have special requirements and in need of special training, it is required by laws that these children receive primary school education. On the other hand, there exist several problems in schooling and educational policies.

The 8-year compulsory education system adopted in 1997 in our country was amended to be for 12 years (4+4+4) with the amendment of 2012 by the Ministry of National Education. It is stated that individuals who turned 5 in the academic year 2012-2013 shall start the compulsory education while there are still several problems relating to how students with special requirements who are under inclusion studies will be regulated and arranged and what supporting services will be provided to students and their classroom teachers. Insufficient number of personnel specialized in the field of special training should be corrected through trainings and employment and on-the-job trainings for classroom teachers should be addressed.

In conclusion, education and training activities should be based on properties of the said individuals as a whole with relevant personnel, program and other arrangements. Considering that the training process that starts within the family and that goes on in preschool and primary school ages, quality of these arrangements for students can be expressed as an indicator of social development.

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Strategy and methodology of ethical education in Slovak Republic

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Abstract

Ethical Education is a compulsorily optional subject in primary and secondary schools. The Ethical Education (EE) objective is the education of a personality with one's own identity, with interiorized ethical standards, with mature moral judgement and therefore with the behaviour determined by one's own beliefs; with a positive attitude to himself/herself and other people and that is why he/she is able to cooperate and to initiate cooperation. EE is thus subject oriented to: personal development (self-understanding, positive self-esteem), social development (knowing other people, their positive judging, group work ability and willingness, empathy, assertivity), moral development (understanding and acceptance of general ethical standards and principles, acting in compliance with ethical standards and one's own beliefs). In the paper we describe strategy of teaching of Ethical education. The basis of this strategy is Cognitive and Emotional sensitization, Reflexion of value, Practices in class and Transfer to workaday conditions. The second aspect of this paper is analyses of methods of ethical education. We describe and analyse two unconventional methods of Ethical education: Drama structuring and The Theatre Forum. Ethical education itself is not a recipe to solve any problems in our society, but it contributes to the education of good people who are aware of the necessity to respect social norms and are able to assume responsibility for their own behaviour in any situation at present and in the future.

Key words: Ethical Education; Strategy of Ethical education; Methodology of Ethical education; Drama structuring; Theatre Forum.

1. Introduction

Changes in society in Slovakia after 1989 created the need for changes in the school system. A typical manifestation of transformation phenomena education in Slovakia is a change of ideology (based becomes humanistic education) and resulting novel characteristics of school: thaw in relations teacher - pupil, penetration of new methods which are based on experience waiver from memorizing a transition to creative exploring the world and so on. In the context of these changes in Slovakia as an experimental subject appeared ethical education. Its foundation was training for sociability, a concept created by R. R. Olivar Autonomia Univerzity in Barcelona. R. R. Olivar, along with Slovak author of Ethical education L. Lencz (and later J. Krizova) introduced the teacher subject; teachers need to be translated to a change in fair shape. The teacher through Ethical education became "partners" to their pupils, although he was the one who determined the rules, but on the other hand, it was also an element of class to first talk about themselves, their feelings, analyse the situation, to which he got so approaching children and young people.

Today, Ethical education is taught as a compulsory optional subject in primary and in secondary education. Its content consists of 10 primary Olivar, 1992) and 6 application topics. The goal is to educate personality with its own identity, capable of independent decision-making, expressing their own opinions, but respecting the freedom

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and the needs of other people. It is a comprehensive program with specific teaching strategies and methodologies. The following sections of the text, we would like to describe the strategy of Ethical education and analyse selected methods of ethics in relation to the objectives of the subject.

2. The Strategy of Ethical Education

Methodology of Ethical education recommends for effective implementation and compliance with the attainment of the object of four basic steps that constitute the acquisition of desirable attitudes:

- A. Cognitive and emotional sensitization
- B. Value reflection
- C. Practice during lessons
- D. Transfer to everyday life

While the first two phases (sensitization and value reflection) provide input to the problem - generating interest and gradual impersonation issues, the last two are practical and personally trained socially desirable behaviour (more about the strategy in Fridrichova – Hajnalova, 2012).

Cognitive and emotional sensitization is the starting phase ethics class. Her role takes place at two levels: emotional attunement pupil on, call up the first phase of personal involvement - preoccupation and cognitive (intellectual) preparing to deal with issues. The basis of cognitive and emotional sensitization is called "Irritation" - a stimulus of very interested in learning. Suggestions in Ethical Education provide important basis of success of the course: personal commitment pupil. It is therefore necessary to ensure the introduction of a teaching unit "retraction" of the pupil to the topic, motivated him to further learning, to an awareness of others and to self-knowledge. Sensitization depends on the good success of the entire teaching units, if a student is personally committed (do not feel that the topic is inherently affects him and for him is important), working formally and not fulfilling the objectives hours. After well projected sensitization pupil experiencing different emotions: joy, sadness, anger, happiness, fright and the like and thinking of their own previous actions in similar life situations, considering the consequences of different decisions and so on. Invoking emotions ensures activation of thinking creates a good basis for reflection on the value and pursues the objective of teaching units.

The purpose of the value of reflection is to point to a desirable value. Value reflection through clearly defined question leads students to reflect on the importance of values for herself or himself, for good coexistence in the classroom, establishing and maintaining friendships, for good family relations and so on. We note (in accordance with the perception of the value of reflection by L. Lencz) that link cognitive and emotional sensitization with reflection of values (i.e. experiential teaching methods with cognitive approaches to teaching) provides a sound basis to enable the teacher to ethics classes avoid theorizing without links with everyday life (only cognitive approach). The result follows the projected hours of ethical education (sensitization linked to the quality reflection of values) should be outlet into concrete actions in the daily management of the pupil.

Difficulty reflection of the value rises with the development socio-moral thinking, and thus is directly linked with the development of personality. The importance of the value of reflection on ethics lessons we see only in the networking experience (emotions) with cognitive topics, but also in fulfilling socio-affective standards, respectively targeting the attention of students to specific values. In primary education would Ethical education through value-reflection have adequate methods to develop sensitivity to the creation, maintenance and development of friendship (as basic social skills). In lower secondary education (based on an analysis of Ethical education in the national curriculum) would have reflection of values towards the development of responsibility for their own decisions and actions (development of responsible attitude to themselves and to others). In upper secondary education is a fundamental requirement of teaching ethics moral development (humanity), which is responsible for developing proper relationships of man in private, at work, in public life, and so on. Ethical

education should value through reflection aimed at developing core values in different stages of education has become an important subject for the development of socially desirable, but especially ethical behaviour.

While cognitive and emotional sensitization prepares the student on, working with his particular experience or experience created directly in the classroom, classroom training is the part of an hour in which the pupil (safe) environment class develops self-discovery and learning about others, but mostly trying to practice and a desirable behaviour. Training in the classroom draws on previous experience and student incentives (cognitive and emotional sensitization), reflection of their own experience in the sense precautions for desirable behaviour and actions in the context of the target values of ethics (and society) and creates the basis for the transfer - application practicing behaviour in everyday life. The essence of training consists of classroom practice and of holding new or modified model of behaviour in different situational contexts. Part of classroom training is continuous reflection, it is necessary for a student to talk about what survives while experimenting with your own behaviour, act in different situations, for self-knowledge and knowing others in their neighbourhood, while valuing himself, his good qualities, knowledge of own weaknesses, receiving criticism and praise, but also the perception of a gradual awareness of the value of other people, formulating constructive criticism and positive expression of other pricing in your area. The pupil needs to confront their own feelings with feelings of others in the group as a reflection of the teacher.

Practicing in normal conditions or transfer interconnects ethical education to real life. Ethical education are often accused her/his "detachment" from life. Is for two main reasons:

- The objectives of Ethical education system are demanding socially desirable values, attitudes and demands for human behaviour in different life situations;
- Socially desirable behaviour in the context of the declared value is realized only in community safety class and after learning the declared values, attitudes, behaviour away from the student (pupil) is not required.

Just another reason why Ethical education becomes the object of criticism, is the answer to the question, why has this subject as the basic strategy of teaching and training in normal conditions. Transfer to normal life is not possible unless the student is satisfied itself of values in everyday situations. On the other hand, it is necessary to confront the desired behaviour, values and life companies. It is expected that the student gradually begins to perceive the advantage of behaviour and decision-making in the context of how it is presented to Ethical educations classes, as enforced values ultimately improve the view of the self (confidence in himself), developing greater awareness of other (search for the good in others people, learning about different responses to different stimuli), promote good relations (openness of communication, self-enforcement, but also acceptance of those around them, help and support) and ultimately benefit the environment in which the child / young person lives.

The presenting cycle training is a system that is based on experience, its reflection and gradually improves their own behaviour, decisions and actions in the context of socially desirable values. In order cycle was presented successful work is needed thought Teacher, which also includes appropriate use of methods and forms of teaching. The following chapters focus on the most common and the most appropriate method, which fills the content and performance standards and are appropriate tools for activating students' achievement in teaching Ethical education.

3. Drama structuring as an unconventional method in Ethical education

Aims and Idea of Ethical Education is not simple. Pupils come to school with specific patterns of behaviour which are typical for their family life or for their peer life with friends.

The question therefore is how and what the students work, the methods and procedures applied in education to be willing and able to respond appropriately later in different situations. Methodology ethics recommended for effective implementation and the attainment of subject compliance strategy. Several methods of drama education conative assist in meeting performance standards and full and content standards of ethics. The drama structuring

is a specific type of drama project used in educational process. It integrates and varies the various methods that are based on role-plays and others activities (discussions, art or music activities). The exploration of situations from various points of view and aspects represent an important integral part of drama structuring. Drama structuring can be based on literary work of art or on a topical issue (e.g. bullying, child abuse, unseen and neglected children, sibling adoption, eating disorders, and others).

As we have already mentioned, it is important to emotionally engage pupils in the topic at the beginning of Ethical education. Therefore, not only cognitive, but also emotional sensitization, the importance of which is multiplied with age, must be included in the initial stages of training courses. Cognitive sensitization allows pupils to become familiar with key terms (the gathering of information about topics, the discovering of what pupils know, or do not know, their opinions of topics, and so on.), but emotional sensitization represents the base for personal tuning and arousing interest in what is going to happen. We consider personal involvement to be a common denominator of successful implementation of drama structuring, the fulfilling of Ethical education aims.

Successful implementation of drama structuring during Ethical education lessons focused on the prevention of undesirable behaviour depends on interest, on the involvement of pupils as well as on whether the problem intrigues them or not. In this context, it should be mentioned that the taxonomy of affective goals according to Krathwohl is based on the willingness to perceive a stimulus, to purposively pay attention to it, to gradually respond to it and to find satisfaction in the trained behaviour. We believe that in terms of Ethical education lessons with implementation of experiential learning, the presented taxonomy of personal involvement constitutes a good departure point for the determination of educational requirements during the stage of emotional sensitization. Teachers as implementers of drama structuring create pedagogical situations that not only absorb pupils in their work and capture their attention, but also motivate them to look for their own solutions, develop a sense of responsibility (a better understanding of the consequences of behaviour in various social contexts) and gradually pupils find out that there is a connection between a problem and themselves, which results in characterization during this stage; i.e. the pupil begins to consider the value or problem in question as an element that is his/her integral part.

The basis of cognitive and emotional sensitization is a so-called dramatic situation representing drama structuring itself. Teachers present a problem in a dramatic context, e.g.: parents are informed that their child is in hospital in coma caused by drug abuse lasting for many years or a minor who is at home alone opens the door to strangers and becomes a victim of burglary or a fifteen-years-old pupil suffers from eating disorder or teachers are informed about an attempted suicide of a pupil because of long-term bullying, etc. During the stage of problem presentation, cognitive sensitization occurs, because pupils consider the problem, they try to remember any examples from their lives, they think about the term or the problem that was presented. The degree of personal involvement depends on how the problem is presented. Morgan and Saxton (2001, p. 40) mention four components that are necessary for drama implementation: participation (physical), monitoring (verified by means of eye contact), listening (verified according to adequate verbal responses) and reactions (non-verbal responses). Morgan and Saxton mention that it is the task of the teacher to arise curiosity (emotional sensitisation).

Role-plays are also very important for emotional and cognitive sensitisation. However, they require a higher degree of personal involvement, i.e. participation and captivation. In terms of Krathwohl taxonomy, pupils who are willing to engage in role-play show willingness to react to a particular impulse, because they identify themselves with the role and the social environment they enter during playing. The performance itself cannot be understood as a theatre performance, but as a social role, i.e. pupils present a mode of social behaviour that in terms of the taxonomy of affective goals represents an assessment of value. The same principle is apparent during role-plays in the situation when pupils play "for themselves" (a so called simulation), or the pupil performs a familiar situation in the role of someone else. In terms of meeting socio-affective objectives, it is necessary to monitor whether pupils are ready to play a role or a situation, i.e. whether a value is assessed. It seems to be appropriate if pupils in primary education first monitor their own behaviour in model situations, and then they

gradually start to practice role-plays. This level is really important if drama structuring is implemented, because teachers can see whether the majority of class is interested in a specific fictive situation or not.

If pupils empathize with the characters and their actions, and their involvement is apparent, then it is possible to continue with the phase of internalization. In line with The Krathwohls taxonomy, pupils should be able to classify and sort out values and attitudes according to the role they play. Captivation represents a peak of drama structuring, i.e. the strongest emotions are generated, what is of most importance to Ethical education teacher in relation to a relevant value reflection.

Value reflection is closely related to the interpretation and evaluation phase, where students have room for survival analysis from multiple angles. The importance of the value of reflection on Ethical education classes is indisputable - because without it disappearing meaning and significance realized. The role of reflection is of value not only to determine whether students understand the issue, but it is also necessary to consider the consequences of decisions made while playing the role or situation.

Result of quality of the value of reflection and excited prior personal commitment, the willingness of the student to reflect on the values, the importance of which for a happy and responsible life outlined the teacher. Even though the structured drama is quite challenging method and its application to the teacher requires a high degree of creativity, ability to organize work and maintain attention and tension in the participants, providing students experience a comprehensive look at the issues examined. Objectives of Ethical education is a complex set of abilities, skills and knowledge and their achievement is a lifelong development. However, we believe that ethics teacher can give a student more than to be able to watch their behaviour and the situation in which he finds himself, comprehensive and knew seek alternative solutions.

4. The Forum Theatre – Specific method of Ethical education

The second method, which is recommended to achieve goals of Ethical education, is the Forum Theatre. Its founder is Augusto Boal, theatre roots are in Brazil and preceded him so simulated dramaturgy. The essence of Forum Theatre is finding as many solutions to one problem, debate and argument. The object of the game may be drugs, aggression, bullying, exclusion of an individual or group bullying at work, infidelity and the like. Theatre Forum takes place in several parts and its base is a short story with an open end. The first part is a performance problem, viewers get to know the "aggressor", victim, find out where the problem actually. Created collision is not intended to address, but to a negative conclusion. After the show - played the situation enters the scene called. Joker plays the role of facilitator observer and attendant between audience and actors. Together with the audience he identifies the main source of the problem - the aggressor and the victim. In the third stage, the game starts playing again, and viewers have a chance to intervene to stop the game at any time and replace one of the actors, but not replace the aggressor - the source of the problem to be solved. The game is played repeatedly until the audience exhausted all ideas to resolve the situation. After each played and completed the situation is re-name the problem, analyses, and discusses the advantages and disadvantages of the proposed solutions. As we mentioned earlier, the true essence of Forum Theatre is one finding the right solution, but finding all the possible solutions (whether they are more or less likely) to analyze their influence on the conduct aggressor.

The Forum Theatre is for students to Ethical education lessons appropriate means of training desired behaviour. Its realization may take even one more lesson. The first play, when the students acquainted with the problem, a cognitive and emotional sensitization. Teacher in position during the discussion Joker realizes the value reflection, resulting in the identification of the problem, pointing out the inappropriateness of the behaviour aggressor, the implications of this case in relation to the victim, the reaction temperature, but also the responsibility of each person. The third phase - searching for solutions - is basically pointing out how it can do, but the sacrifice itself to change the behaviour of the aggressor in the event of his own actions. At this stage there is an awareness of their own responsibility, the impact of their actions on the environment. Comprehensively it

can be stated that The Forum Theatre is inherently close to reality and helps students find a connection between a normal life and school.

In terms of achieving the objectives of ethics may The Forum Theatre is a suitable means to conduct training, which is a child or young people learn how to defend against negative environmental influences. Also learn how to recognize inappropriate behaviour, will see its share of the solution of the adverse situation, but especially be seen and gradually aware of the responsibility of everyone in problematic situations. Forum Theatre can be considered successful if students produce proposals for further troubleshooting and gradually passing from the stage of aggressive interventions in defence of victims to assertive actions that disarm the aggressor. Then the teacher can see that pupils are adopting non-violent patterns of behaviour, and thus they realize what are the standards of what is good and what is bad in the proceedings of the individual and what the consequences may have their aggressive intervention to solve the problem. Achieving this goal requires the teacher patience, precision in demanding respect for rules and standards, continuous analysis of negative and positive events in the classroom and reinforcing appropriate behaviour of students.

5. Conclusion

Ethical education is a subject focused on personnel (knowledge of himself, himself a positive evaluation, design your own self-development), social (knowledge and learning about others, a positive evaluation of others, the ability and willingness to work in a group, empathy, assertiveness, reasoning ability and acceptance of other views, etc.) and moral development (knowledge and adoption of general ethical standards and principles, act in accordance with ethical standards and self-belief). By applying specific teaching strategies based on the reflection of my own experience and applying the appropriate techniques can gradually achieve individual goals of Ethical education and participate in education and personalities respecting standards of good companies, but especially the fundamental ethical principles.

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Strategy focused schools: an implementation of the balanced scorecard in provision of educational services

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Abstract

The main mission of the educational institutions is to provide benefit and create the social values for the society. In order to ensure educational institutions to deliver their main mission, they should measure whether they have achieved their strategic objectives or not. While most of the main objectives of the businesses are financial such as maximizing the profits, however educational institutions' prior performance objectives are not financial ones. Therefore, the performance management of the high schools as an educational institution should be based on nonfinancial performance perspectives. By bringing a comprehensive system to performance measurement, the balanced scorecard (BSC) may help educational institutions to motivate and evaluate the organizational performance. The BSC may be a suitable model to be used in public and non-profit organizations by defining the links between leading inputs, processes, and outcomes and focusing on the importance of managing these components to achieve the organization's strategic priorities. While the implementation of the balanced scorecard (BSC) in the different sectors is frequently seen in the literature, very few researches has been conducted concerning the application of the BSC in the education sector. In this study we will develop a BSC model for the high school in Turkey. First we will review the administrative structures, functions and the operations and the current performance measurement systems of the high schools. Later in the study we develop the perspectives of the school balanced scorecard and we define strategic objectives, performance measures relating to these objectives, performance targets for each measure and initiatives. In the study, we suggest that if high schools use the balanced scorecard as a strategic performance management system it may help them to be strategy focused and may better serve their missions.

Keywords: School; Performance Management; Provision of Educational Services; The Balanced scorecard

1. Introduction

Education is a vital fact that increases knowledge which is an essential feature that enhances the qualifications of people and therefore it plays a critical role in shaping the future of the nations. It is well known that education is an important factor at accelerating economic, cultural and social development in a country. As competition in educational services has become more intense, many educational institutions invested in education in order to achieve their goals. In order to ensure educational institutions to deliver their main mission, they should measure whether they have achieved their strategic objectives or not.

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Education has been related with the process of instructing young people in ways which form the mind and character necessary to become good citizens and employable workers to increase the development of a country. Nowadays, education has become a life-long process, increasingly connected to schooling, human and economic development, and productivity by enhancing personal and national welfare. During the past 50 years, development of educational services has contributed to a fundamental conversion of OECD countries, including Turkey (Owings, Kaplan and Pirim, 2012). As a developing country, Turkey accepts education as a crucial component in constructing its economy to world class levels.

The purpose of this study is to increase understanding of how the BSC is used in educational institutions. This paper is organized in the following manner. First we will review the purpose of educational services as privat and governmental sector. Then strategic planning in education is presented. Later in the study we develop the perspectives of the school balanced scorecard and we define strategic objectives, performance measures relating to these objectives, performance targets for each measure and initiatives.

2. Educational Services

The purpose of education is to improve the welfare of the individual and the society by promoting civilized, progressive, competent and efficient development of the individual and the society in a given country. Nowadays in developed countries, the priority of educational services is one of the main features that determine level of development. Besides education provides special benefits to people, it also creates positive externalities to the society that increases the social development of a country. The developments in all fields of life increase the importance of education. Thus concentration of many efforts in the provision of this service by government and private sector become prominent.

There are different perspectives on the outcomes of the education process. One view states that education increases the skills of individuals and thus contributes all kind of development. This perspective perceives investment in people as capital investments. The greater is the investment of human capital, the greater is the productivity. Another view is about the socialization role of education. It teaches people how to perform well in public, work and home. In this perspective, there is a positive relation between education period and social skills of individuals. These social abilities make people more valuable in the life. Another function of education is to identify the abilities of different individuals. Those who attend to school longer than the others get higher wage and are observed to be more productive. This is not because the schools have increased their productivity, but rather because the schools have identified those individual who are the most productive, or who have the necessary ability or skill. This view indicates schooling as separating the very able and highly motivated from the less ones (Stiglitz, 1999).

3. Strategic Planning in Education

Public and private educational institutions are experiencing challenges such as increased competition, emerging technology, scarcity of resources or inefficient resource allocation. Because of globalization trend and knowledge-based era all these challenges become more important. The increasing volatility of the environment has forced institutions to adapt to ever changing external circumstances (Machado and Taylor, 2010). The literature strongly recommends strategic planning as the key to superior performance. According to the mission and vision of the educational institutions managers should apply administrative and managerial strategies to achieve the institutions' goals.

Planning is a way of looking toward the future and deciding what the organization will do in the future. Strategic planning is a disciplined effort to produce decisions and actions that guide and shape what the organization is, what it does, and why it does it (Bryson, 1995).

Pfeiffer *et al.* (1986) defined strategic planning as, “the process by which members of an organization envision its future and develop the necessary procedures and operations to achieve that future.” Another definition in the literature that is often used to explain what strategic planning is made by Barry (1997) and he states that it is “*what* an organization intends to achieve and, secondly, *how* leadership within an organization will direct or utilize its resources to achieve its ends”.

Figure 1 shows the process of in an uncomplicated view. Bryson (2004) provides a simple structure for the strategic planning process by defining the ABC’s of strategic planning. According to Bryson, A is where you are, B is where you want to be and C is how you get there. The vision, mission, and goals of the organization help it move from A to B. Strategy formulation connects A to C and strategy implementation connects B to C.



Fig. 1. ABC's of Strategic Planning

Source: Bryson, J.M. (2004). Strategic planning for public and nonprofit organizations: a guide to strengthening and sustaining organizational achievement (3rd ed.). San Francisco: JosseyBass, p.11.

In short, strategic planning indicates the path managers will take to achieve the mission and the vision of their institution. Strategic actions will guide managers to achieve their institutions' goals by providing strategic

direction, allocating and concentrating their resources –human, financial, and material-, establishing shared values, coping with uncertainty and indicating success and failure. As a result of this process, institutions will have a clearer idea of what it is, what it does, and what challenges it faces. Following strategic plans will also help the institutions to get enhanced performance and responsiveness to its environment.

It can be thought that strategic planning process is an issue of business sector because for many years business and education have been regarded as two separate areas that act completely different. But there are considerable common points between the activities of a school and the activities of any other organization.

As far as the similarities are concerned, the main task of both business and education is to make a profit. One could argue that their profit is different, but what matters is that in one way or another they both seek to achieve something. Their resources are always limited, since there is a scarcity and they are constantly trying to obtain more for themselves. In contrast, their needs are usually unlimited and they are trying to satisfy as many as possible (Tsiakkiros & Pashiardia, 2002).

The concept strategy is used widely for over 10-15 years in the education system and educational institutions and especially with implementing number of actions related to planning more efficiently. There is also a wide use of the word strategy together with planning in the literature. According to the literature if the planning is not strategic, it is not accepted as a plan. Strategic planning's advantages is seen as a path for schools that transmit them to the future (Ensari, 2005).

School managers should take more initiatives in order to fit to the rapidly changing environmental circumstances. Strategic planning helps to cope with this problem by presenting a functional model. In this way managers can be more effective and make their schools adaptive to the changing environment (Erdoğan, 2000).

4. Education and Performance Measurement

Performance management is a means of auditing and managing the organizations' overall activity. Organizations are encouraged to raise their levels of performance, and manage their staff and customers more tightly to achieve better outputs and outcomes. The transformation of industrial era into the information age has improved the importance of educational services. This change has placed education in a central position in the development of countries. In the sight of globalization, managers need to cope with changing environments and technology. In order to compete with the others all institutions have to provide these services successfully, the managers of the educational institutions carefully design the activities and processes, organize and implement the planned activities, and conduct the supervision and controls on the operations. The most important activity of control functions of the management is the performance measurement and management, which are among the main tasks of the managers. Managers may set up a performance management system for the entire institution as a systematic system or just for a specific activity or for a business unit. In some cases performance measurement can be done just for a specific purpose.

Performance measurement results of an activity to determine the extent to achieve observance. The performance measurement is not only a data collection process but rather it is a process to improve effectiveness and efficiency of operations. The performance measurement is an important process for decision-makers in any type of organization. However, it is not sufficient just to measure the performance of the activities. Managers should also make the decisions based on performance results and implement corrective actions according to the results (Coşkun and Şenyiğit, 2010).

Performance indicators should be rigorous chosen. According to Markless and Streatfield (2001) good performance indicators should be:

- Relevant to accepted organizational goals.
- Informative (giving warning signs, identifying achievements etc.).
- Able to be changed.

- Reliable.
- Valid
- Accessible/understandable.
- Acceptable (seen to be fair; checkable).
- Not corruptible.
- Cost-effective.

The use of indicators of performance as a way of managing and improving performance in education is now so widespread across schools, colleges and universities that it is difficult to imagine educational life without them. Educational institutions operate in both the private sector and the public sector. The main objective of the educational institutions in the private sector is to increase profitability and the value of the institution, or to ensure the continuity of business as determined in accordance with the basic aim is scheduled. Managers of educational institutions in the public sector aim to achieve the goals and objectives determined by the law and improve the general education level of the society. Therefore, in the performance management of the public educational institutions, non-financial factors such as satisfaction of the customer (student) and other stakeholders and service quality are more important than the financial objectives. However, the financial aspect of business continuity is also important in the evaluation of the performance of public enterprises (Coskun, 2009).

Performance measurement systems in educational institutions can be either based on financial or nonfinancial performance. Financial statements analysis, standard costing and budget analysis are the examples of financial performance measurement. Managers of the educational institutions can also implement nonfinancial approaches of the performance measurement such as measuring the service quality, productivity, efficiency and effectiveness, and customer satisfaction. As a contemporary approach in performance measurement and management, the balanced scorecard (BSC) provides a comprehensive set of financial and nonfinancial performance measures for the organizations to be strategy focused. Reliance only on financial performance measures may not show future competitive advantage as financial indicators are outcome measures (Chia et al., 2009). Without measuring results, there is no way of knowing whether the business is being managed satisfactorily, nor is it possible to hold managers accountable for the business. Moreover, it is not easy to determine what kind of successes should be rewarded. Even though so far there have been numerous tools developed for the purpose of performance measurement; the BSC differs by putting the organization's vision and strategy into a framework effectively and communicating the strategic intent efficiently.

5. Concept of the Balanced Scorecard

The Balanced Scorecard is a management tool that was developed by Kaplan and Norton in the 1990s (Kaplan and Norton, 1992; 1993; 1996a; 1996b; 2000, 2001). Kaplan and Norton recognized the need for businesses to have a more "balanced" approach of assessing company performance than the traditional method of looking strictly at financial data (Davis, 2005).

Kaplan and Norton (1996a) list the following uses of the BSC:

- To clarify and update strategy
- To communicate strategy in the company
- To align unit and individual goals to strategy
- To link objectives to long term targets and budgets
- To conduct performance reviews to improve strategy

Since the new economy has new concepts such as process orientation, continuous improvement, competence and knowledge, customer focus, and operational efficiency, it *generates* challenges for measurement of data (Gumbus et al., 2003). While financial data is important, in large part, it only gives an indication of historical company performance. The BSC combines financial data along with non-financial performance criteria, such as product quality and customer service, in a way that allows businesses to not only track their performance, but also to align business activities in such a way that they support the organization's stated missions and goals (Davis, 2005). The BSC system has flexible structure. It is important to take into account the specific needs of the institution and the industry in which it competes when creating the BSC (Olson and Slater, 2002).

Mainly there are four stages of the BSC design and implementation for most type of organizations (Kaplan and Norton, 1996a): Translating the vision, communicating and linking, business planning, and feedback and learning.

The BSC provides superior financial performance when compared to a traditional performance measurement system (Albright and Davis, 2004). In contrast to the financial based measurement systems, the BSC reinforces the organization's focus on future success by setting objectives and measuring performance from different perspectives. 'Balance' is expected to be assured by short and long-term financial and nonfinancial and leading indicators, concerning four perspectives (Ahn, 2001). These balanced perspectives in the Kaplan and Norton's first BSC are the financial perspective, customer perspective, internal business processes perspective, and learning and growth perspective (Kaplan and Norton, 1992). The BSC retains the financial measurement, but it focuses on a more general and integrated set of measurements that link customer, internal business processes, employee learning and growth, and financial performance to long-term financial success.

These four perspectives are defined as (Griffith et al., 2002):

- Financial Perspective – performance and resource management (related to investors' interests)
- Internal Business Processes Perspective – cost, quality, efficiency and other characteristics of goods or services (related to internal processes)
- Customer Perspective – measures of satisfaction, market share and competitive position (related to customers' needs)
- Learning and Growth Perspective – ability to respond to changes in technology, customer attitudes and economic environment (related to constant improvement concerning employee qualification and information management)

For each perspective of the BSC, strategic objectives, performance measures relating to these objectives, performance targets for each measure and initiatives are defined. Performance measures in a scorecard should be linked to each other and to the long term vision and strategy, following a cause and effect relationship (Coskun and Bayyurt, 2008). This cause and effect relationship clearly explained in the BSC strategy maps. A BSC strategy map is a generic architecture for describing the strategy and shows the cause and effect relationship between the perspectives (Kaplan and Norton, 2001).

The BSC assists companies in overcoming two important issues: effective organizational performance measurement and implementing strategy (Niven, 2002). The first issue is an effective performance measurement: "If you cannot measure it, you cannot manage it". Traditionally, the performance measurement system for

business has been financial. A key problem with looking at financial or accounting-based measures alone is that it gives only one particular perspective. In fact, it may even lead to poor decision-making. For example, if the cost per customer is one of the main performance measures managers may try to cut costs without taking care of customer satisfaction and this may result dissatisfied customers because of the lower quality products and services. Implementing a strategy successfully is another important issue facing organizations. A strategy is a set of hypotheses about cause and effect. The measurement system makes the relationships (hypotheses) among objectives in the various perspectives explicit so that they can be managed and validated (Niven, 2002).

The BSC is not merely a collection of financial and non-financial measurements. The BSC should be the translation of the business unit's strategy into a linked set of measures that define both the long-term strategic purposes, as well as the mechanisms for achieving those purposes (Kaplan and Norton, 2000). In the nature of implementing strategies, the organization may have some barriers. There are four barriers to strategy implementation that exist for most companies: a vision barrier, a people barrier, a resource barrier, and a management barrier. The managers can remove these barriers by implementing the BSC (Niven, 2002).

There are also some requirements for an effective and efficient implementation of the BSC (Mearns and Havold, 2003):

- The organization has to know where it would like to go and how it will get there.
- The organization must understand that the scorecard is a long-term exercise. It is a tool for implementing business strategy.
- Management must have the maturity to use the results of the scorecard for continual improvement and not look for faults in the measures if they see something they do not like.
- The BSC must reach down the organizational structure and back up again. It is a tool for departments as well as senior management, and the scorecards throughout the organization must be linked together.
- Parameters must be objective and the data gathering process should be transparent to people using the information or being measured.
- It is unrealistic and de-motivating to measure people on things they cannot control.

6. Balanced Scorecard for Educational Institutions

The BSC is not only better in monitoring and evaluating performance of an educational institution but also in improving the performance to its best level. For instance, by tracking value delivery and paying incentives to staff based on how much value an organization delivers to customers, rather than the amount or value received from customers, educational institutions can motivate and redirect staff to look for better ways to improve value of service. This can serve as counter to the possibility of staff motivation to promote short-term importance on the revenue received from clients. Also by effectively tracking improvement made by students, families and community, BSC can give internal stakeholders such as teaching staff and employees a renewed pride in what they do (MacStravic, 1999).

The original BSC of the Kaplan and Norton (1996a) has financial, customer, internal process, and learning and growth perspectives, but educational institutions may modify these four perspectives in their scorecards or add some other perspectives. We slightly changed the original scorecard and used four perspectives in the Balanced Scorecard for Educational Services: stakeholders, internal processes, learning and growth, and financial sustainability perspectives

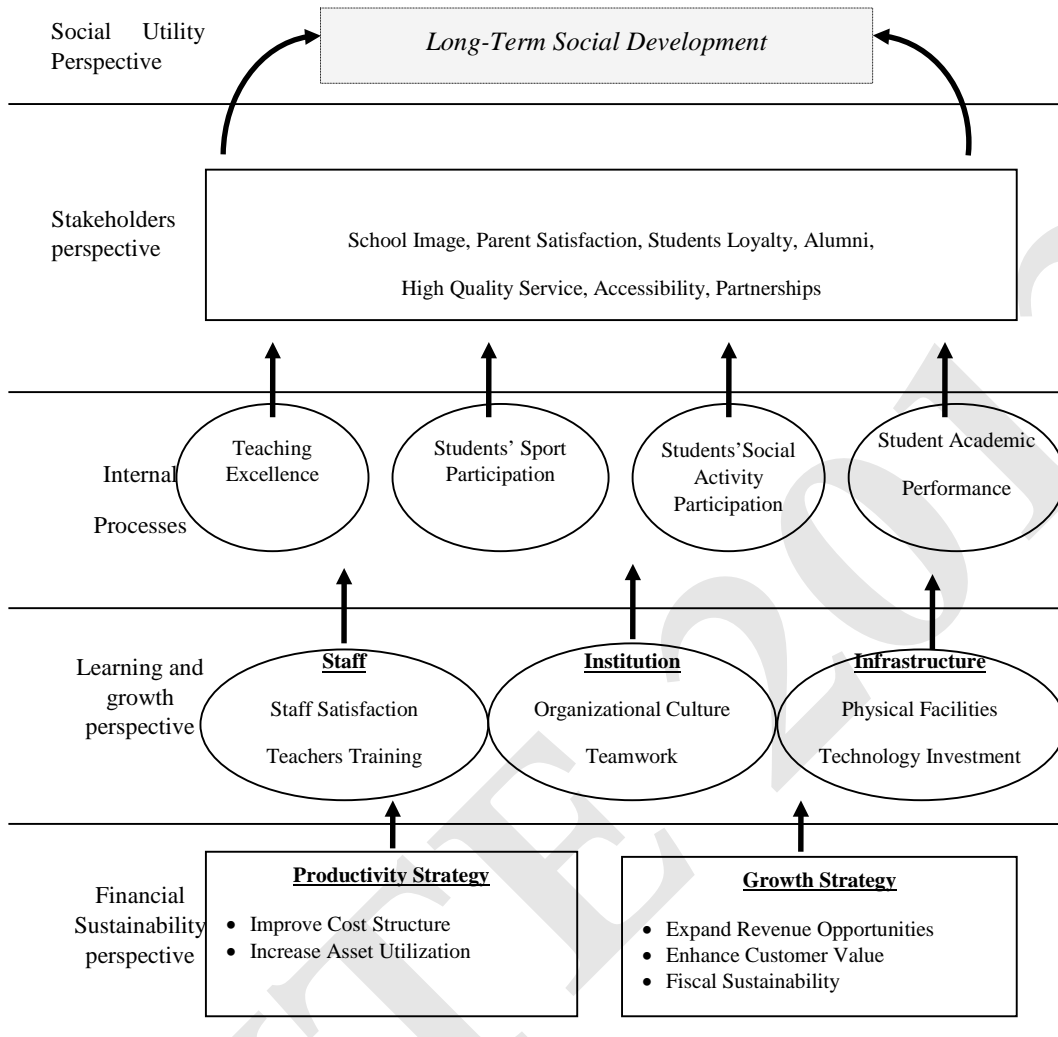


Fig. 2: Strategy Maps for Educational Services

In each perspective of the balanced scorecard for educational services there are related strategic objectives and certain number of performance measures to evaluate the achievement to these objectives. Performance targets for each performance measure are determined and achieved results are gathered end of each period. Depending on characteristics of the institutions and the strategic objectives performance measures may differ.

We developed a Balanced Scorecard for Educational Services in Table 1. Later we defined the strategic objectives in each perspective. Finally we determined the performance measures to evaluate the achievement of each strategic objective. There are three strategic objectives in financial sustainability perspective of the balanced scorecard for educational services: improve cost structure, increase asset utilization expand revenue opportunities. Four performance measures can be used to evaluate these strategic objectives: Saving in cost of service, efficient use of facilities and resources, level of student enrollment fund raising from stakeholders. In the second perspective, learning and growth perspective; improve staff satisfaction, Technology implementation and Knowledge enhancement are the three strategic objectives which are measured at the balanced scorecard for educational services. Internal processes perspective is listed with improving the student academic performance,

to achieve improvement in teaching excellence, increase students participation to sport activities and increase in students participation to social activities are the four strategic objectives. Educational institutions can achieve these targets by measuring exam results of students, budget spent on staff development, number of students attending the sport activities, number of social activities as performance indicators. Finally, in stakeholders perspective of the balanced scorecard for educational services we determine objectives based on three different aspects. Students, parents and other related institutions. These objectives can be measured by reputation ratio,, external rankings, alumni evaluation graduation job offerings, university acceptance rate, school leaving rates, quality assessments, joint projects and activities.

Table 1. Balanced Scorecard for Educational Services

	Strategic Objectives	Performance Measures
Stakeholders perspective	Promote school image	Reputation ratio,, external rankings, alumni evaluation
	Parent satisfaction	Graduation job offerings, university acceptance rate
	Students loyalty	School leaving rates
	Increase quality of service	Quality assessments
	Encourage partnership with related institutions	Joint projects and activities
Internal processes perspective	Improve the student academic performance	Exam results of students
	To achieve improvement in teaching excellence	Budget spent on staff development
	Increase students participation to sport activities	Number of students attending the sport activities
	Increase students participation to social activities	Number of social activities
Learning and growth perspective	Improve staff satisfaction	Satisfaction surveys
	Technology implementation	Number of courses using new technology
	Knowledge enhancement	Number of seminars attended
Financial Sustainability Perspective	Improve Cost Structure	Saving in cost of service
	Increase Asset Utilization	Efficient use of facilities and resources
	Expand Revenue Opportunities	Level of student enrollment Fund raising from stakeholders

Conclusion

The main purpose of performance measurement and management in educational institutions is to increase accountability, handle with changing environmental and compete with the other institutions. As competition in educational services has become more intense, many educational institutions invested in education in order to achieve their goals. In order to ensure educational institutions to deliver their main mission, they should measure whether they have achieved their strategic objectives or not. In line with this purpose, many aspects were explored about the BSC in literature and it can be claimed that there are much to be discovered about it. Although the BSC has been implemented in developed countries for many years, especially in business sector, it has not until recently brought relevant sectors' attention on BSC theory and BSC has rarely been applied especially in educational institutions in Turkey. Therefore, this study verifies that BSC is a performance management system and a strategic management tool to achieve institutions goals. In this study we state that, by emphasizing missions and visions in educational institutions, schools can learn from business and pay more attention to educational costs and benefits in implementing performance management.

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Student academic support as predictor of academic locus of control in Turkish university students

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Abstract

The purpose of this study is to examine the relationships between academic locus of control and student academic support. The sample of study consists of 477 university students who were enrolled in different programs at Sakarya University, in Turkey. In this study, Academic Locus of Control Scale and Student Academic Support Scale were used. The relationships between student academic support and academic locus of control were examined using correlation analysis and multiple regression analysis. According to results internal academic locus of control was predicted positively by dimensions of student academic support. Further, external academic locus of control was predicted negatively by dimensions of student academic support. Results were discussed in the light of literature.

Keywords: Academic locus of control, Student academic support, Multiple regression analysis

1.Introduction

As a personality factor, the locus of control concept comes from Rotter's (1966) social learning theory, represents individual's beliefs of his/her ability to execute control over their environment and related to interaction of individual and environment (Yates, 2009). Locus of control (LOC) can be accepted as a personality trait that has a powerful cognitive focus and it is the result of anticipation about expected outcomes of events in a person's life (Lefcourt, 1991). LOC refers individual's perceptions that they have in the amount of control over their lives (Rotter, 1966), set of beliefs about personal behaviors and the relationship of that behaviors to how one is awarded or punished (Morris, 1979; Chak & Leung, 2004).

LOC can be defined as the degree to which a person believes that control of reinforcement is under internal versus external control (Rotter, 1966; O'Brien, 1986). Accordingly, LOC shows a distribution on dimensions of internal (strong personal control and influenced by inside forces) and external locus of control (weak personal control and influenced by outside forces) (Akin, 2010). Rotter (1966, p.618) propounded that individuals who have internal locus of control (ILOC) believe that "reinforcements are contingent upon their own behavior, capacities, or attributes". Otherwise individuals who have external locus of control (ELOC) "reinforcements are not under their personal control but rather are under the control of powerful others, luck, chance, fate, etc." Individuals with high ILOC believe that they can control their own fate, see the outcomes are results of own behavior; they are confident and careful in attempting to control their external environments; they can have a direct influence on the events in their

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lives, accept responsibility for their events (Burger, 1992; Davis & Davis, 1972; Esterhuysen & Stanz, 2004). On the other hand, individuals with high ELOC believe that consequences are not related to their actions and are result from some factors out of individual's control like luck or intervention by others, more determined by external forces rather than by themselves and they have little things to do to influence outcomes; they blame their environment for failures and see the events as unpredictable (Esterhuysen & Stanz, 2004; Iskender & Akin, 2010; Rotter, 1966; Phares, Wilson, & Klyver, 1971).

Previous studies indicated that there is a positive association between LOC and academic achievement (Dağ, 1991) so the way a student accounts for personal achievements or failures in school (Cetinkalp, 2010) which refers academic locus of control (ALOC) is important. Studies on LOC and academic achievement indicated that individuals with ILOC have a higher academic achievement than the ones with ELOC; ILOC has been found to be a significant predictor of academic achievement and achievement motivation (Brown, Fulkerson, Furr, Ware & Voight, 1984; Eachus & Cassidy, 1997; Findley & Cooper, 1983; Weiner & Kukla, 1970). Otherwise Aremu, Pales and Johnson (2009), found that individuals with the ELOC have more tendency for dropout. Students who have more ILOC tendencies perceive that their academic success depends on their own effort and pay more attention to knowledge and learning in order to reach their target (Burger, 2006). In addition, Akin (2010) showed that learning-avoidance and performance approach/ avoidance goals were predicted positively by the ELOC and the ILOC predicted learning-approach/avoidance goals in a positively and performance-approach/avoidance goals negatively.

Student Academic Support

Peer leadership has been becoming quite important in the current education system. It is traditionally defined as academic support, and courses for the purpose of one-to-one studying or preparation for exams (Keup & Mullins, 2010). These skill-based approaches are quite inadequate to meet the changing requirements of students (Clark-Unite, 2007). Peer education support is very important for the students especially in terms of academic skill development, professional developments, development of personal efficacy feeling as well as skill development for communication and establishing bilateral relationships (Smuts, 1996). Maxwell (2001) defines academic peer support as "socializing the education" in his study. Social support perceived socially by the individual consists of people who helped, has been helping and will help the individual. Peer academic support includes the assistance interaction of students to each other academically (Kenny & Rice, 1995; Lafreniere & Ledgerwood, 1997; Shaver & Buhrmester, 1985). Lack of social support for the student causes the student to look for academic support from other students. However, there is little information on the process how academic student support and peer support occur (Chen, 2005; DeBerard, Spielmans, & Julka, 2004; Tinto, 1997, 2005). Peer academic support includes the solution of academic problems faced by students (e.g., answering of questions about papers, studying together, sharing studying habits, helping with academic difficulties) and academic encouragement (support for reducing exam stress, academically motivating for courses) (Mazer & Thompson, 2011; Thompson, 2008; Thompson & Mazer, 2009). Informal peer support in undergraduate level has an importance place in terms of academic support system and academic efficacies of students (Braithwaite, Bride, & Schrodt, 2003; Jones, 2008; Kong, 2009; Mortenson, 2006). Thompson (2008) stated that methods of communication with each other and academic peer support effect are quite important for the academic successes of students. Academic peer support is effective on formation of new academic expectations and on the academic support system interiorized by the individual (Alfaro, Umana, & Bamaca, 2006; DeBerard et al., 2004; Kenny & Rice, 1995; Lafreniere & Ledgerwood, 1997; Thompson, 2008; Tinto, 2005). In this context, informal academic peer support has a quite important place in academic success of students (Giddan, 1988; Mpofu, 2003; Penn-Edwards & Donnison, 2011). Tinto (1997) concluded that social and academic success levels of students increase as their academic and social communication methods increase. Peer academic support is important for the education programs to achieve their aims. In addition, peer support has a positive effect on new learning gains of the students.

McKeachie, Pintrich, Lin and Smith (1986) emphasizes that "the answer of best teaching method is education aims, student, content and teacher... but another answer as an alternative is academic peer support". Many researchers studied on the effect of social support on academic success (De Berard, Spielman, & Julka, 2004; Forman, 1988; Kloomok & Cosden, 1994; Malecki & Demaray, 2002). It was concluded that social academic support is related with cognitive, emotional and behavioral factors on the students and in addition academic peer support has a positive effect on students with difficulty to learn and low academic success (Rothman & Cosden, 1995; Wenz-Gross & Siperstein, 1997). In studies on university students, it was found that peer support has an effect on primary degree academic success (Elliott, 2007; Mazer & Thompson, 2011; Thompson, 2008; Thompson & Mazer, 2009). These supportive interactions among university students have a developing effect on social support and peer relations. In addition, developing peer supportive relations is important for making up for the traditionally lost values. Study of Thompson (2008) which examined the academic support process thoroughly in terms of students is quite important since it presented the factors which affect academic support processes of university students.

Despite these findings, as far as our knowledge, no study has investigated the relationships between academic locus of control and student academic support. Thus, the aim of the present study is to examine the relationships between academic locus of control and student academic support. Based on the studies of student academic support (Cutrano, et al., 1994; Rueger, Malecki, & Demaray, 2010; Sacco & Yanover, 2006; Vieno, Santinello, Pastore, & Perkins, 2007; Satici, Uysal & Akin, 2013; Williams, 1995; Yıldırım, 2006) and academic locus of control (Akin, 2010; Arslan & Akin, in press; İskender & Akin, 2010; Çetinkalp, 2010; Eachus & Cassidy, 1997; Findley & Cooper, 1983; Hans, 2000; Mearns, 2006; Weiner & Kukla, 1970) with psychological constructs we hypothesized that student academic support would be associated positively with internal academic locus of control and negatively with external academic locus of control

2. Research Method

In this part are given such information as the research method used in the research, the universe and sample of the research, the development and implementation of measuring tools, collection of data and analysis of the collected data.

2.1. Participants

Participants of the study were 477 university students (277 were female and 200 were male) enrolled in various undergraduate programs at Sakarya University Faculty of Education, Turkey. Their ages ranged from 18 to 25 years and the mean age of the participants was 21.6 years.

2.2. Measures

Student Academic Support Scale (SASS). SASS developed by Mazer and Thompson (2011) consists of 15 items (e.g., Explained how to solve a specific problem) including sub-dimensions of information support, respect support, motivation support and relieving support has a 5-point Likert type grading (1 Never - 5 Always). Development studies of the original scale were conducted on 253 individuals. Fit index values of four-dimension model in confirmatory factor analysis applied for structure validity of the scale is found as follows: $\chi^2= 83.17$, $p<.01$, RMSEA=.067, NNFI=.98, CFI=.99, SRMR= .03. Internal consistency reliability coefficient is .94 for information support sub-dimension, .78 for respect support sub-dimension, .81 for motivation support sub-dimension and .84 for relieving support sub-dimension. Under criterion-related validity, a positive relationship was found with "Inventory of Social Support Behaviors" ($r=.75$, $p<.01$) and "Perceived Social Support Scale" ($r=.44$, $p<.01$).

The Academic Locus of Control Scale (ALOCS); Akin, 2007). The ALOCS is a 17-item self-report scale using a 5-point Likert scale (1 = strongly disagree to 5 = strongly agree). This scale has two sub-scales: external academic locus of control (11 items) and internal academic locus of control (6 items). The

Cronbach a internal consistency coefficients were .95 for external academic locus of control and .94 for internal academic locus of control. Test–retest reliability was assessed by readministering the scale to 148 undergraduate students in 3 weeks time. The Pearson correlation coefficients were .93 and .97 for two sub-scales, respectively.

2.3.Procedure and Data Analysis

Convenience sampling was used in the selection of participants. Convenience sampling is a non-probability sampling technique in which participants are selected because of their convenient accessibility and proximity to the researcher. For this reason, the results of this study did not make inferences from the population which led to a decrease in external validity. Students voluntarily participated in research, completion of the scales was anonymous and there was a guarantee of confidentiality. The scales were administered to the students in groups in the classrooms. The measures were counterbalanced in administration. Prior to administration of scales, all participants were told about purposes of the study. In this research, Pearson correlation coefficient and multiple regression analysis were utilized to determine the relationships between dimensions of academic locus of control and academic student support.

3.Results

3.1.Descriptive Data and Inter-correlations

Table 1 shows the means, standard deviations, inter-correlations, and internal consistency coefficients of the variables used. Preliminary correlation analysis showed that informational support ($r=.44$, $p<.01$), esteem support ($r=.45$, $p<.01$), motivational support ($r=.40$, $p<.01$) and venting support ($r=.50$, $p<.01$) related positively to internal ALOC. In contrary, while informational support ($r=-.43$, $p<.01$), esteem support ($r=-.42$, $p<.01$), motivational support ($r=-.34$, $p<.01$), and venting support ($r=-.43$, $p<.01$) were found negatively associated with external ALOC.

Table 1 *Descriptive statistics and inter-correlations of the variables*

Variables	Informational S.	Esteem S.	Motivational S.	Venting S.	Internal ALOC	External ALOC
Informational S.	—					
Esteem S.	.67**	—				
Motivational S.	.42**	.60**	—			
Venting S.	.34**	.50**	.89**	—		
Internal ALOC	.44**	.45**	.40**	.50**	—	
External ALOC	-.43**	-.42**	-.34**	-.43**	-.82**	—

** $p < .01$

3.2.Multiple Regression Analysis

Before applying regression, assumptions of multiple regression were checked. The data were examined for normality by the Kolmogorov-Smirnov test. The Kolmogorov-Smirnov test indicated normality of distributions of test scores for all tests in the current study. Outliers are cases that have data values that are very different from the data values for the majority of cases in the data set. Outliers were investigated using Mahalanobis distance. A case is outlier if the probability associated with its D^2 is .001 or less. Based on this criterion, five data were labeled as outliers and they were deleted. Multi-collinearity was

checked by the variance inflation factors (VIF). All the VIF values were less than 10 (Tabachnick & Fidell, 2007), which indicated that there was no multi-collinearity.

Two stepwise multiple regression analysis have applied to determine which dimensions of student academic support were the best predictors of internal and external academic locus of control. Table 2 showed the results of multiple regression analysis where the independent variables were dimensions of student academic support and the dependent variable was internal ALOC.

Table 2. *Summary of Stepwise Multiple Regression Analysis for Variable Predicting Internal ALOC*

Variables	<i>B</i>	<i>SE_B</i>	β	<i>t</i>	<i>p</i>	<i>R</i> ²
Step 1						
Informational support	1.59	.149	.44	10.675	.00	.19
Step 2						
Informational support	.919	.194	.254	4.730	.00	.24
Esteem support	1.99	.381	.281	5.225	.00	
Step 3						
Informational support	.895	.192	.247	4.666	.00	.26
Esteem support	1.22	.427	.172	2.861	.04	
Motivational support	.568	.150	.188	3.793	.00	
Step 4						
Informational support	.934	.175	.258	5.331	.00	.38
Esteem support	1.421	.390	.200	3.641	.00	
Motivational support	-1.586	.260	-.525	-6.105	.00	
Venting support	1.817	.186	.777	9.750	.00	

**p* < .01

Informational support entered the equation first, accounting for 19% of the variance in predicting Internal ALOC. Esteem support entered on the second step accounting for an additional 5% variance. Motivational support entered on the third step accounting for an additional 2% variance. The last regression models informational support, esteem support, motivational support and venting support as predictors of Internal ALOC and accounted for 38% of the variance in Internal ALOC. The standardized beta coefficients indicated the relative influence of the variables in last model with informational support, esteem support, motivational support and venting support all significantly influencing Internal ALOC and informational support was strongest predictor of Internal ALOC.

Table 3 showed the results of multiple regression analysis where the independent variables were dimensions of student academic support and the dependent variable was external ALOC.

Table 3. *Summary of Stepwise Multiple Regression Analysis for Variable Predicting External ALOC*

Variables	<i>B</i>	<i>SE_B</i>	β	<i>t</i>	<i>p</i>	<i>R</i> ²
Step 1						
Informational support	-1.03	.099	-.434	10.463	.00	.19
Step 2						
Informational support	-.655	.130	-.275	-5.052	.00	.22
Esteem support	-1.118	.254	-.239	-4.399	.00	
Step 3						
Informational support	-.645	.129	-.270	4.994	.00	.23
Esteem support	-.801	.287	-.171	-2.785	.00	
Motivational support	-.234	.101	-.118	-2.324	.02	
Step 4						
Informational support	-.667	.121	-.280	-5.497	.00	.32
Esteem support	-.914	.270	-.196	3.379	.00	
Motivational support	.988	.180	.496	5.485	.00	
Venting support	-1.031	.129	-.669	-7.981	.00	

**p* < .01

Informational support entered the equation first, accounting for 19% of the variance in predicting External ALOC. Esteem support entered on the second step accounting for an additional 3% variance. Motivational support entered on the third step accounting for an additional 1% variance. The last regression models informational support, esteem support, motivational support and venting support as predictors of External ALOC and accounted for 32% of the variance in External ALOC. The standardized beta coefficients indicated the relative influence of the variables in last model with informational support, esteem support, motivational support and venting support all significantly influencing Internal ALOC and informational support was strongest predictor of External ALOC.

4. Conclusion

The aim of this study was to investigate the relationship between student academic support and academic locus of control. It was supposed that student academic support would be associated positively with internal academic locus of control and negatively with external academic locus of control. The results of correlation and regression analysis confirm these hypotheses and the importance of student academic support, especially student academic support from peers for better understanding of academic locus of control.

In addition, some details of the results should be further addressed. Firstly, the positive correlation between the student academic support and the internal academic locus of control is in line with existing studies on student academic support and the internal academic locus of control (Akin, 2010; Iskender &

Akın, 2010; Arslan et al., 2012; Arslan & Akın, in press; Lefcourt, Rod, & Saleh, 1984; Satici, Uysal & Akın, 2013). The findings demonstrate that students would be eager to select other students for academic support rather than teachers. Students would choose peer support because of access, availability, and shared context. Social-support research indicated that both within and outside the academic performance has been described as a key feature of the social support process (Thompson, 2008; Thompson & Mazer, 2009; Vaux, 1985). Noteworthy finding of the study, the perceived student academic support predicts internal locus of control in a greater extent than the teachers' support. Previous studies shows that (Ghaith, 2002; Johnson & Johnson, 1994; Rueger, Malecki, & Demaray, 2010; Vieno, Santinello, Pastore, & Perkins, 2007; Satici, Uysal & Akın, 2013; Yildirim, 2006) perceived student academic support is related positively to adaptive variables in terms of education. Student academic support is one of the most important aspects of classroom climate that may influence students' academic achievement (Ghaith, 2002; Malecki & Elliott, 1999). In addition, students tend to give significant importance action-facilitating academic support from their friends throughout their university life (Demaray & Malecki, 2003; Thompson & Mazer, 2009).

Secondly, the negative correlation between the perceived student academic support and the external academic locus of control supports the hypothesis of the study and demonstrates that people who experience weaker perceived student academic support would tend to be external ALOC. Students with an external locus of control will need more support and guidance from the instructor and peers (Bargezar, 2011; Satici, Uysal & Akın). Also this finding is coherent to that of Sarason et al., (1983) who, found that college students with low perceived social support and an external locus of control performed on an unsolvable problem inadequately.

This study has a number of limitations. First of all, the sample presented here consists of university students. For that reason, it is questionable whether the findings can be generalized to gender and different age groups. Secondly, this research was limited by the use of self-report scales and wasn't used a qualitative measure of student academic support and academic locus of control. Lastly, as correlational statistics were applied, no definitive affirmation about causality could be made. Consequently, despite of the limitations this study provides crucial knowledge about the predictors of academic locus of control and academic student support. The variables which are shown that in this study exactly reported for the motivational process that triggers student's academic performance.

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Student perceptions on the development of speaking skills: A course evaluation in the preparatory class

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Abstract

This study aimed to evaluate the student perceptions and perspectives on their progress in the speaking skills course at the Preparatory school of English Language Teaching program in the Faculty of Education at Sakarya University. In this study, the CIPP model developed by Stufflebeam was taken as a basis of evaluation to measure the perceptions of the preparatory students towards the effectiveness of the course. As is known, the CIPP model consists of four core concepts: context, input, process, and product evaluation. In this study, the stage of process was evaluated by means of a four part questionnaire consisting of 66 items and 5 open ended questions. The main objective of the evaluation at this stage was to find out defects in the procedural design or its implementation in process to come up with tangible suggestions for the refinement and improvement of the program. The evaluation of the course revealed several significant results in that more pair work and group work are favored by the students. Student-centered classes are preferred by the majority of the students. More peer correction is regarded as a helpful activity that might also serve to constitute a friendly atmosphere in a class. Students' perceptions clearly indicated that the most frequently used type of instructional method was student presentations. From the open ended question section, it is obvious that students do not prefer lecture type classes. They prefer interactive, entertaining and cooperative tasks in their learning process.

Key words: Evaluation, Process, Implementation, CIPP Model, Perception.

1. Introduction

Recently, the demand for English teachers has grown in Turkish education system since learning English language has gained importance in finding a decent job, being able to follow scientific journals written in English and keeping up with new technologies. Therefore, if one wants to remain updated in the world of science, s/he cannot do without a proper understanding of English. This need is, to a certain extent, met through preparatory schools, which give students an academic year of English education. Preparatory schools enable students to have a proficient knowledge of English so that they can follow their courses in their departments effectively. Because of this crucial mission attributed to preparatory schools, it is essential that the preparatory school programs should be evaluated so as to be aware of their strengths and weaknesses.

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Scriven (2003) states that evaluation is not just the process of determining facts about things, but it is expected to come up with a particular type of conclusion using evaluative terminology such as bad, good, better, worse, well, ill, elegant, poor and so forth to indicate the significance, value, worth or merit of an object.

According to Worthen (1990), evaluation is merely determining the value of something, which can be applied to programs of any size in educational settings. Language education practitioners have recently begun to realize the benefits of broader notions of evaluation as a means of informing program development, and focusing on program processes (Alderson & Beretta, 1992; Kiely & Rea-Dickins, 2005; Lynch, 1996). Evaluation can take two forms depending on the objectives. If the aim is to improve the program, it is typically called formative evaluation, and if the aim is to decide on the fate of the program, then it is called summative evaluation (Worthen 1990).

In order to gain a full understanding of the evaluation process the term 'evaluation' needs to be defined clearly.

Evaluation has a great number of definitions in the field. Lynch (1996), for example, defines evaluation as the systematic attempt to gather information in order to make judgments or decisions. As such, both qualitative and quantitative forms can be used to evaluate information, and different methods such as observation or the administration of pen-and-paper tests can be used to gather data. As for program evaluation, Lynch states that it not only provides insiders with valuable information on how the current work can be improved but also offers accountability to outside stakeholders (Lynch (1996).

Stufflebeam, Madaus and Kellaghan (2002) conceptualize the evaluation as neither a once-off nor a static activity. Brown (1995), in his explication of a systematic approach to language program development, points out that evaluation is the heart that connects and gives blood to all the other program elements.

Similarly, Richards (2001) defines evaluation as a systematic collection and analysis of all relevant information necessary to promote the improvement of the program and to assess its effectiveness within the context of the particular institutions involved.

Dickins and Germaine (1992) claim that there is a common belief that evaluation means the same as testing, and evaluation is done while students are being tested. However, testing is only one component of the evaluation process. They further state that evaluation is an indispensable part of teaching and learning. Evaluation should never be underestimated as a standardized and prepackaged process. However, planning evaluation could be a standardized, prepackaged process, and the steps involved in conducting an evaluation could clearly be identified (Ogle, 2002).

Scheerens, Glas and Thomas (2005) define educational evaluation as judging the value of educational objects on the basis of systematic information gathering in order to support decision making and learning. In line with the other practitioners and writers Scheerens, Glas and Thomas (2005) define educational evaluation as judging the value of educational objects on the basis of systematic information gathering in order to support decision making and learning.

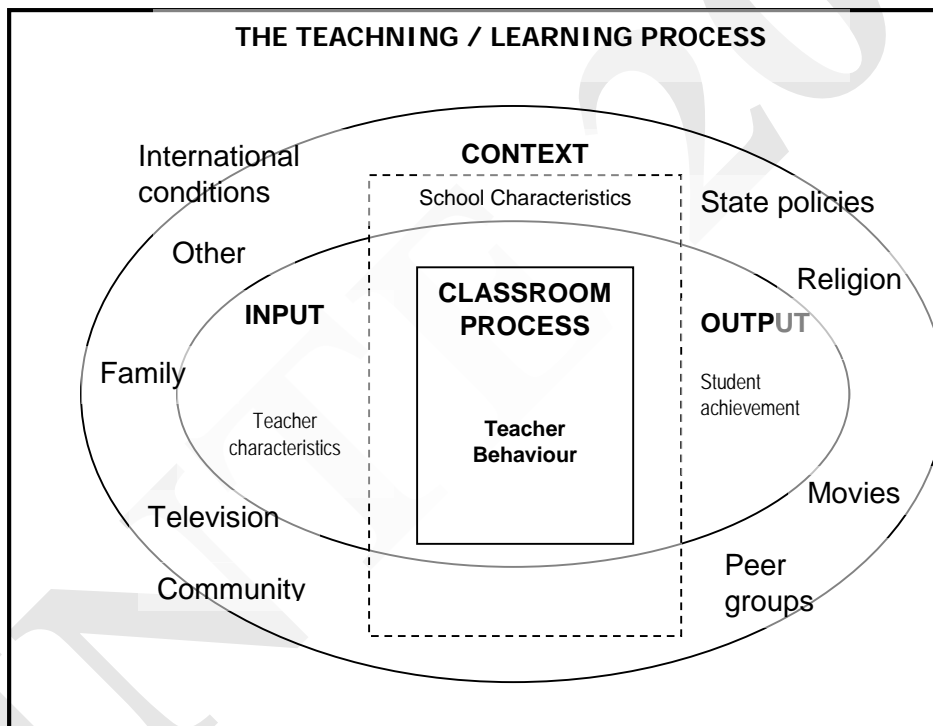
Stufflebeam (2002) describes the CIPP Model as adaptable and widely applicable to evaluate materials, personnel, students, programs, and projects in a range of disciplines and most important purpose of this evaluation is not to prove, but to improve.

The CIPP model's central components are context, input, process, and product evaluation. The objectives, methods and the relation of decision making functions of the components are given in Table 1.1

(Huitt, 2003). Table 1.2 illustrates Huitt's (2003) model of instructional process which identifies the major categories of variables that are related to school achievement.

Although the table 1 depicts the important features of the CIPP model, the components of the model might be summarized as follow: Context evaluation assesses needs, problems, and opportunities as bases for defining goals and priorities and judging the significance of outcomes. Input evaluation assesses alternative approaches to meeting needs as a means of planning programs and allocating resources. Process evaluation assesses the implementation of plans to guide activities and later to help explain outcomes. Product evaluation identifies intended and unintended outcomes both to help keep the process on track and determine effectiveness (Stufflebeam, 2002).

Table 1. A transactional model of the teaching/learning process (Huitt, 2003)



Inside the classroom there are a number of elements such as teachers, students, classroom environment and knowledge which are constantly interacting with each other (Huitt, 2003). Institutions can make use of information obtained through CIPP evaluations to solve institutional problems and meet accountability requirements. By disseminating evaluation reports, institutions can help stakeholders to participate in decision making process.

Table 2. Four types of evaluation in CIPP model.

	Context Evaluation	Input Evaluation	Process Evaluation	Product Evaluation
Objective	To define the institutional context, to identify the target population and assess their needs, to identify opportunities for addressing the needs, to diagnose problems underlying the needs and to judge whether the proposed objectives are sufficiently responsive to the assessed needs	To identify and assess system capabilities, alternative program strategies, procedural designs for implementing the strategies, budgets and schedules	To identify or predict in process defects in the procedural design or its implementation, to provide information for the preprogrammed decisions and to record and judge procedural events and activities	To collect descriptions judgments of outcomes and to relate them to objectives and to context, input and process information and to interpret their worth and merit
Method	By using such methods as system analysis, survey, document review, hearings, interviews, diagnostic tests and the Delphi techniques.	By inventorying and analyzing available human and material resources, solution strategies and procedural designs for relevance, feasibility, and economy	By monitoring the activity's potential procedural barriers and remaining alert to unanticipated ones, by obtaining specified information for programmed decision	By defining operationally and measuring outcome criteria, by collecting judgments of outcomes from stakeholders and by performing both qualitative and quantitative analyses.
Relation to decision making in the change process	For deciding upon the setting to be served, the goals associated with meeting needs or using opportunities, and the objectives associated with solving problems	For selecting sources of support, solution strategies and procedural designs	For implementing and refining the program design and procedure	For deciding to continue, terminate, modify or refocus a change activity and to present a clear record of effects(intended and unintended, positive and negative)

From *Evaluation Models Viewpoints on Educational and Human Services Evaluation Second Edition*. In Kellaghan, T., Madaus, G. F., Stufflebeam, D.L (Eds.) Dordrecht: Kluwer Academic Publishers. 2002 p.302.

Process evaluation includes three strategies. The first is to detect or predict deficiencies in the procedural design or its implementation stage, the second is to provide information for decisions and the third is to maintain a record of procedures as they take place. This stage, which includes the three strategies, occurs during the implementation stage of the curriculum development. It is a piloting process conducted to refine the program before district- wide implementation. From such evaluation, project decision makers obtain

information they need to anticipate and overcome procedural difficulties and to make decisions (Ornstein and Hunkins, 1988).

The focus of *process evaluation* is the implementation of a program or a strategy. The main purpose is to provide feedback about modification if the implementation proves inadequate. In process evaluation, formative assessment serves to the purpose to a great extent. Formative assessment tools, in their non-evaluative nature, are quizzes or assignments which are employed to provide timely, specific and corrective feedback to the learners and instructors (Cizek, 2009).

Production or progress evaluations are conducted to determine whether a program meets its goals. Implementation evaluations are conducted to determine whether a program is being conducted as planned (Ogle, 2002).

In paralel with the definitions above, Alkin (2011) also states that formative evaluation is conducted during the implementation and utilised to provide information to see how things are going. It might also provide the information whether the goals of the program are achievable or not.

2. Program Description

2.1 Evaluation Setting:

The evaluation took place in the Preparatory school of English Language Teaching (ELT) program, Sakarya University. The ELT program started education with 45 students in the fall term of 2010-2011 academic year..

2.2 Participants:

30 students who failed a language proficiency test enrolled in the preparatory school comprised the sample of the study. The evaluation process took 4 weeks in the middle of the term The participants were authorized to study in the department of English Teaching by the Turkish Higher Education Council according to their scores on the University Entrance Examination. Characteristics of participants were analysed by means of descriptive statistics and given in the following tables.

Table 3. Gender

	Frequency	Percent
Male	5	16,7
Female	25	83,3
Total	30	100,0

Table 4. Age

	Frequency	Percent
18 and under	17	56,7
19-24	13	43,3
Total	30	100,0

Table 5. Type of high school

	Frequency	Percent
General high school, Vocational high school	14	46,7
Super/ Anatolian Anatolian teacher / science/ Anatolian technique high school,	16	53,3
Total	30	100,0

Table 6. English course

	Frequency	Percent
Yes	14	46,7
No	16	53,3
Total	30	100,0

2.3 Evaluation Questions

This evaluation study sought answers to the following questions:

- 1) What are the students' perceptions of the speaking class?
- 2) What needs to be done to improve the quality of speaking class?
- 3) Is there a correlation between the success and student perceptions?

2.4 Evaluation Design

Following an initial meeting with the course instructor, it was agreed that a formative evaluation was needed to learn how the classes were 'going' in order to make necessary amendments in classroom procedures.

The result of the evaluation would be used both during the rest of the semester and during the next one, when he would be teaching the same class.

To measure students' perceptions of the speaking class, a questionnaire that included 66 items was adapted from Erozan (2005). The questionnaire was composed of four parts. The first part (items 1-4) gathered information about students' gender, age, high school type, and previous experience with English. The other parts were Likert-type scales. The second part (5-26) had twenty-one 5-point Likert scale questions to measure students' perceptions of the teaching-learning process. The third part (27-44) had nineteen 4-point Likert scale questions about their perceptions of the frequency of classroom activities and methods. The last part (45-66) had twenty-two 3-point Likert scale questions about how frequent the activities should be. In Part 2, the scale ranged from 'I strongly disagree' to 'I strongly agree,' in Part 3, from 'Never' to 'More than I want'; in Part 4, from 'Never' to 'Often'. In addition, an open-ended questionnaire with five items was given at the end of the questionnaire as the fifth part so that the students could elaborate on their answers to the items in the questionnaire

The data obtained from the closed items in the questionnaires were analyzed by using descriptive statistics from SPSS 15.0, through presenting the frequency counts of the responses for each item in the questionnaire. The internal consistency coefficient (Cronbach alpha) calculated for the reliability study was found to be $\alpha=0.80$. It was agreed before the administration of the questionnaire that a cut-off point of 60% was validated for decisions about all items. Cut-off score was chosen as 60 arbitrarily because the department, the instructor and the students were new. For example, if more than 60% of the students believed that the class was interesting, it would mean that the students perceived the class positively. To gain insight for the success rate of the students, six in-term scores obtained from all speaking exams were taken into consideration. The correlation between success rate and teaching-learning process was analyzed by means of Pearson Correlation test.

Open-ended items in the questionnaire were analyzed by listing all raw data (all the individual responses) under each item, and then grouping the similar responses, identifying common themes, and counting frequencies. In this part, since the interpretation of the students' opinions was essential to provide deeper insight into the research questions, qualitative method was resorted for open ended questions. Students' answers in the open ended questions were valuable for the evaluator to be able to observe whether there was a consistency between their responses in the closed ended questionnaire and its open ended counterpart. As Patton (1990) claims, qualitative methods are used to investigate 'What actually happens to people in the program? What they say about what happens to them?' (p.420).

3. Results

3.1 Statistical results-Descriptive Statistics

Students' responses in the 2nd part of the questionnaire showed that students generally had positive perceptions of the items. More than 60% of them agreed or strongly agreed on all the items except 7, 15, 20, 22, and 25.

Table 7. Items related to the student perceptions of teaching and learning process

Item No	Items		Strongly Disagree	Disagree	No Idea	Agree	Strongly Agree
8	A variety of activities is used in the course.	f		2	7	11	10
		%		6.7	23.3	36.7	33.3
9	The teacher teaches in an interesting way.	f		1	9	13	7
		%		3.3	30.0	43.3	23.3
10	It is easy to follow the teacher.	f		3	6	20	1
		%		10.0	20.0	66.7	3.3
16	The teacher pays equal attention to all students in the class.	f	1	3	6	14	6
		%	3.3	10.0	20.0	46.7	20.0
21	The lessons are taught in an interesting way.	f			10	17	3
		%			33.3	56.7	10.0

Table 7 indicates that although the items 8, 9, 10, 16, 21 were agreed on 70% or so, 30% of the students remained neutral, disagreed or strongly disagreed. From these responses, it seems that about 30% of the students either had difficulty in following the classes or found the classes tedious.

Table 8. Items related to the student perceptions of teaching and learning process

Item No	Items		Strongly Disagree	Disagree	No Idea	Agree	Strongly Agree
7	The students have cooperative relationships with each other.	f		2	14	10	4
		%		6.7	46.7	33.3	13.3
15	The teacher uses the board effectively.	f	1	4	8	15	2
		%	3.3	13.3	26.7	50.0	6.7
20	I use only English in class.	f	1	6	12	10	1
		%	3.3	20.0	40.0	33.3	3.3
22	Other students help me to learn in this course.	f	2	3	8	12	5
		%	6.7	10.0	26.7	40.0	16.7

25	The students give sufficient feedback on each other's performance.	f	6	4	14	3
		%	20.0	13.3	46.7	10.0

As indicated in Table 8, the items 7, 15, 20, 22, and 25 revealed that almost 50% of the students did not exchange ideas and collaborative work could not be utilized among them. The item results indicated that the students failed to engage in pair work and group discussions and could not establish class spirit.

Table 9. Items related to the student perceptions of teaching and learning process

Item No	Items		Strongly Disagree	Disagree	No Idea	Agree	Strongly Agree
5	There is an efficient use of time in class.	f			6	20	4
		%			20.0	66.7	13.3
6	There is a good student-teacher interaction in the course.	f				23	7
		%				76.7	23.3
11	The teacher's instructions about what we should do are clear.	f		1	8	14	7
		%		3.3	26.7	46.7	23.3
12	The teaching methodology of the teacher is effective in our learning.	f			5	16	9
		%			16.7	53.3	30.0
13	The teacher encourages us to participate in the lessons.	f				19	11
		%				63.3	36.7
14	The teacher uses audio-visual aids (OHP, video, CD player, etc.) effectively in the lessons.	f		1	2	12	15
		%		3.3	6.7	40.0	50.0
17	The teacher's correction our mistakes facilitates our learning.	f	1	1	2	15	11
		%	3.3	3.3	6.7	50.0	36.7
18	I prefer to work individually in class.	f	10	9	5	5	1
		%	33.3	30.0	16.7	16.7	3.3
19	I prefer to work with (a) partner(s) in class.	f		1	5	13	11
		%		3.3	16.7	43.3	36.7
23	The teacher helps me to learn in this course.	f			4	16	10
		%			13.3	53.3	33.3
24	The teacher gives sufficient feedback on our performance.	f		1	9	16	4
		%		3.3	30.0	53.3	13.3

As presented in Table 9, 100% of the students agreed on items 6 and 13, by indicating that they had interactive classes and their teacher motivated them for participation. The items 5, 11, 12, 14, 17, 18, 19, 23, 24 were related to the *instructor performance* and showed that 80% or more of the students were satisfied with their instructor in terms of the methods, techniques and corrective feedback.

Table 10. Items related to the frequency of activities.

Item No	Items	None	Not enough	The right amount	More than I wanted
26	Teacher lecture	f	1	24	5
		%	3.3	80.0	16.7
27	Silent individual work	f	1	24	2
		%	3.3	80.0	6.7
28	Student presentations	f	1	23	6
		%	3.3	76.7	20
29	Pair work	f		25	5
		%		83.3	16.7
30	Group work	f		24	6
		%		80	20
31	Discussions	f	9	18	3
		%	30	60	10
34	Projects	f	4	22	4
		%	13.3	73.3	13.3
35	Video sessions	f	5	20	5
		%	16.7	66.7	16.7
36	CD sessions	f	1	22	7
		%	3.3	73.3	23.3
37	Homework/Assignment	f	2	24	4
		%	6.7	80	13.3
40	Reading aloud (by students)	f	5	24	1
		%	16.7	80	3.3
41	Reading aloud (by the teacher)	f	1	24	2
		%	3.3	80.0	6.7

As presented in Table 10, Students' responses in the third part of the questionnaire showed that students generally had positive perceptions on the items. Of 19 items consisting the whole third part of the questionnaire, 12 items were found sufficient enough or more than sufficient. Pair work and group work seem to be the most frequently used activities with the percentage of 100% followed by teacher lectures and student presentations with the percentage of %96.

Table 11. Items related to the frequency of activities.

Item No	Items		None	Not enough	The right amount	More than I wanted
32	Games	f	6	16	8	
		%	20	53.3	26.7	
33	Role plays	f	10	12	5	1
		%	33.3	40	16.7	3.3
38	Peer correction	f	4	13	13	
		%	13.3	43.3	43.3	
39	Self correction	f	1	13	15	1
		%	3.3	43.3	50	3.3
42	Songs	f	3	21	6	
		%	10.0	70	20	
43	Peer evaluation/feedback	f	5	16	9	
		%	16.7	53.3	30.0	
44	Self evaluation	f	6	12	12	
		%	20	40	40	

As indicated in Table 11, the activities in the items 32, 33, 38, 39, 42, 43 and 44 were considered to be used insufficiently or were not used at all. Activities such as role plays with the percentage of %20 , songs with the percentage of %20, games with the percentage of %27 seem to be least used activities followed by peer feedback with the percentage of %30, self evaluation with the percentage of %40, Peer correction with the percentage of %43 and Self correction with the percentage of %53.

Table 12. Items related to the students' preferences of activities

Item No	Items	Never	Sometimes	Frequently
45	Teacher lectures	f	11	19
		%	36.7	63.3
47	Pair work	f	4	26
		%	13.3	86.7
48	Group work	f	8	22
		%	26.7	73.3
52	Video sessions	f	11	18
		%	36.7	63.3
53	Tape sessions	f	6	24
		%	20	80
56	Computer-aided activities	f	7	23
		%	23.3	76.7
59	Teacher correction	f	6	24
		%	20	80
64	Questioning (by the teacher)	f	9	21
		%	30	70

As indicated in Table 12, the activities in the items 45, 47, 48, 52, 53, 56, 59 and 64 were the most preferred activities. The findings of the fourth part of the questionnaire revealed that the participants mostly preferred pair work with the percentage of 86.7%, CD sessions with the percentage of 80% and teacher correction with the percentage of 80% in their Speaking Skills course. Second most wanted activities to be utilized during the courses are listed as computer aided activities with the percentage of 76.7%, group work with the percentage of 73.3% and questioning by the teacher with the percentage of 70%. Though not favored by the participants mostly, teacher lectures with the percentage of 63.3% and video sessions with the percentage of 63.3% could be categorized as moderately wanted activities. When the statistics were taken into consideration, it could be said that the participants stated a firm opinion on the need of pair work activities, teacher correction and the use of multimedia sources in classes.

Table 13. Items related to the students' preferences of activities

Item No	Items		Never	Sometimes	Frequently
46	Individual work	f	7	19	4
		%	23.3	63.3	13.3
49	Role-plays	f	11	14	5
		%	36.7	46.7	16.7
65	Translation	f	7	13	10
		%	23.3	43.3	33.3

As indicated in Table 13 the activities in the items 46, 49 and 65 were not preferred by the participants. Only 16.7 % of the participant wanted to use role play frequently, 33% of the participants preferred translation and 13% preferred individual work during Speaking Skills courses.

3.2 Inferential Statistics

Table 14. T-test results between the age of students and teaching-learning process in Speaking Skills course.

	Age	N	Mean	Std. Deviation	Degree of freedom	t	p
Process	18 and under	17	79,24	6,778	28	,002	,999
	19-24	13	79,23	7,791			

Table 14 shows that there is no significant difference between the age of students and teaching-learning process in Speaking Skills course ($t_{28}=0,002$; $p>0,05$).

Table 15. T-test results between the type of high school and teaching-learning process in Speaking Skills course.

	Type of High School	N	Mean	Std. Deviation	Degree of freedom	t	p
Process	A	14	80,86	5,736	28	8,027	,248
	B	16	77,81	8,027			

A: General High School, Vocational High School,

B: Super/ Anatolian / Anatolian Teacher / Science/ Anatolian Technique High School.

Table 15 reveals that there is no significant difference between the type of high school and teaching-learning process in Speaking Skills course ($t_{28}=8,027$; $p>0,05$).

Table 16. T-test results between previous experience of English course and teaching-learning process in Speaking Skills course.

	English Course	N	Mean	Std. Deviation	Degree of freedom	t	p
Process	Yes	14	80,50	6,925	28	,911	,370
	No	16	78,13	7,293			

Table 16 indicates that there is no significant difference between previous English course experience and teaching-learning process in Speaking Skills course ($t_{28}= 0,911$; $p>0,05$).

Table 17. Correlation between teaching-learning process and students' success rate

		Success	Process
Success	Pearson Correlation	1	,347
	Sig. (2-tailed)		,060
	N	30	30
Process	Pearson Correlation	,347	1
	Sig. (2-tailed)	,060	
	N	30	30

Table 17 signifies that there is a moderate correlation between teaching-learning process and students' success rate in Speaking Skills course ($p<0,05$). As is clearly known, several factors affect students' success in the process of education and Table 5.2.4 illustrates that students' perceptions on the teaching-learning process in Speaking Skills course have an impact on their success rate up to 12% (Determination coefficient, $r^2= 0,12$).

4. Open-ended Questions

Despite the fact that dialogues and conversations are considered to be the most evident and most frequently used speaking activities in language classrooms, a teacher has always a chance of selecting activities from a variety of tasks (Florez, 1999). Brown (1994) lists the possible in-class activities and tasks in six categories as imitative, intensive, transactional, responsive, interpersonal and extensive.

In light of these categories, the students' ideas about the most useful activities related to both receptive and productive skills were analyzed in the open ended question part. 22 students stated that they should somehow interact with others in the class, be it in group discussions or dialogs. Some believed that they could relate stories or other information to the speaking context. A third of the students underscored the importance of input, half of whom preferred watching movies. They think that watching subtitled films once a week may help them to acquire correct pronunciation, a wide range of vocabulary and improve their listening abilities.

Others mentioned reading, listening to authentic conversations, and memorizing prefabricated chunks may be also worthy to improve their listening abilities.

The theme of input emerged even more conspicuously in students' responses to how the instructor could help them most (12 instances). In addition to the being provided with input from the sources mentioned, two students wanted the instructor to 'give them information about speaking,' and one suggested memorizing vocabulary. The students also craved for motivation (7 instances), both in the form of encouragement and coercion from the instructor. Moreover, four students asked for whole class speaking activities such as discussions and individual speaking activities such as retelling stories and giving presentations.

The students believed that teaching learning process should include more group work, corrective feedback, and English practice. As a confirmation of students' demand for more discussions and dialogues, seven of the students believed that they should work in groups. However, in doing so, they wanted to be obliged to speak in English, a result that confirms the questionnaire's finding that they spoke in their L1 during the class hour (11 instances). Also, the students wanted corrective feedback from the instructor (7 instances).

The students' answer to question one – other possible activities and their preferred frequency – generally confirmed the above mentioned issues. They wanted to watch more films (8 instances), engage in dialogs (1 instance), prepare presentations (1 instance), be placed under pressure and encouraged to talk (1 instance), or listen more (1 instance). A different suggestion over the activities in the questionnaire was imitation (4 instances). One student suggested imitating local accents; another, songs. Still another asked for memorizing roles in a theatrical production and staging it.

5. Conclusions and Recommendations

The evaluation of the course revealed several significant results in that more pair work and group work is favored by the students. Student-centered classes are not preferred by the majority of the students. More peer correction is regarded as a helpful activity that might also serve to constitute a friendly atmosphere in class, which most students complained about. Students' perceptions clearly indicated that the most frequently used type of instructional method was students' presentations. From open ended question section, it is obvious that student do not prefer lecture type classes. They prefer interactive, entertaining and cooperative tasks in their learning process. As for the recommendation for the future studies, the study can be

reinforced by means of classroom observations, teacher interviews, learner diaries and recordings which will obviously give more reliable and generalisable results.

6. Limitations

The main limitation of this study was that the sample size was not big enough to have more generalizable results. Therefore, it is assumed that the relation between the student perceptions and success rates may reveal different results in a more comprehensive study.

Another limitation was that some of the responses students gave in open ended question part fell short of providing a clear 'picture'. Hence, these responses needed further elaboration.

For example, five students mentioned that they wanted 'activities' in class, without giving any more information. The evaluator and the instructor came to believe that an activity could be engaging students in more production-oriented tasks or providing them with a variety of tasks. Although all the students believed that the teacher tried to motivate them, seven of the students stated that they needed more encouragement and inducement. The last limitation which is worth mentioning was concerned with data collection instruments. Classroom observations, teacher interviews, learner diaries and recordings could not be done which could have given more detailed insights in the study.

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Survey of Observing Printing and Publishing Technologies Program Graduates at Vocational School of Higher Education in Turkey (State - Foundation University)

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Abstract

Tracking and observing graduates is a study field which has not been studied enough to meet the expectations in Turkey. Any type of data gathered are considered to be very significant in terms of both reorganization of educational content and providing solidarity between alumni. Tracking graduates is also thought to be useful in monitoring employment policies. The focus of this study is on the employment rates of graduates of Printing and Publishing Technologies program at two different universities, one of which is a state and the other is a foundation university. Evaluation has been made through Graduate Monitoring Surveys. Research techniques such as descriptive statistics, and the average percent has been used to analyze the data.

Keywords: Vocational Schools, Printing, Publishing, Graduates

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1. INTRODUCTION

Vocational Schools in the Turkish educational system have been founded in order to provide communication between employees and management and to contribute to a continuous flow of the production cycle (Balci, 1996). Besides, the objective of existence of Vocational Schools has been divided into two main branches. The first is to provide employments of graduates in accordance with the demands of relevant sectors. The second is to prepare students to the license level of education after their graduation. These two axes have become important for the education system in vocational schools as well as employment. Vocational schools conduct educational activities of the students while they track their graduates' employment rates. However it is an issue which has been neglected to a great extent in Turkey (Kavak, 1992). Research on the subject is very few in Turkey. However there are some researches made by Arabacıoğlu and his colleagues in the field of Computer Programming. (Arabacıoğlu et al, 2011). A more extensive research on the graduate tracking is the Graduates Survey of Ankara University Faculty of Educational Sciences, which was conducted for three times (Taymaz, H. ve arkadaşları, 1995). Another graduate follow-up study was carried out by the Bakıoğlu and friends. The survey conducted by Bakıoğlu and his friends is about the experiences of the graduate tracking system. It also focuses on the attitudes towards career planning, volunteerism, communication, commitment to the school and the expectations of university graduates (Bakıoğlu, A. and Friends 2011).

Turkey Vocational Qualifications Authority (VQA), founded in 2006, sets the qualification needed within the framework of professional-level ranking of Level 5 which is briefly defined as the knowledge, skills and competence in a particular field's dimensions of expertise, being able to use their own initiative in case of unforeseen circumstances (www.myk.gov.tr). Printing and Publishing Technologies programs, which make up the main structure this research, have been founded to meet the needs in pre-press, printing, post-print production and management activities in the sector. (Karasar, 1981). The program was named "Printing Program" when first established in 1980. (Abike, 2003), which later took the name of "Printing and Publishing Technologies Program" with the Human Resources Development through Vocational Education Project (İKMEP).

2. Purpose

The aim of this study is to find answers to the following questions:

- What is the employment status of graduates of the program?
- Which the printing and publishing industries and jobs do the graduates work?
- What are the attitudes of graduates towards the training received in the program?
- What are the thoughts about the adequacy of training they have received?

3. Methodology

In this section includes research design, sampling, data collection, and resolution.

3.1. Research Methodology

The research has been carried out in a survey form. It was aimed to determine the employment status of Printing and Publishing Technologies Programme graduates. In this context, the researchers developed a questionnaire with 14 questions to get feedback from graduates.

3.2. Population and Sapmle

Participants of the survey are Printing and Publishing Technologies Programme graduates (2009-2012). In total there are 170 graduates, 40 of whom are from Yildiz Technical University and 130 of whom are from İstanbul Arel Üniversitesi. All graduates were reached via e-mail and social networking sites. Survey was conducted among the 85% of the İstanbul Arel University Graduates and 26% percent of the Yildiz Technical University graduates. Therefore 65% of the graduates took part in the survey with 111 questionnaire.

3.3. Data Collection and Analysis

The data used in the scope of research has been collected through questionnaires. The development of the survey has been carried out in two stages. The first stage includes the literature review and the review of the questionnaires used in such studies. The second stage includes preparation of a new questionnaire with the help of experts. Questionnaire includes three parts and fourteen questions regarding personal information, employment and opinions related to training received. The survey gathers data using statistical programs analyzed in the context of the frequency percentages.

4. Findings

This section includes the results obtained through questionnaires. Genders of the respondents were also determined in Table 1.

Table 1. Genders of the Respondents

		Gender		Total
		Female	Male	
University	Foundational	45	40	85
	State	21	5	26
	Total	66	45	111

85 out of 111 respondents are the graduates of a foundation university while 26 of them are from a state university. 66 of the respondents are female and 45 of them are male graduates of the related programme. Therefore it is possible to say that the survey has been preferred more by the female graduates.

4.1. Employment Findings

The participants are asked the question "Do you work in any field now?" The was asked "Yes" and "no" and all the participant graduates gave their answers. The data collected through the question is indicated in Table 2.

Tablo 2.The state of the graduates' employment in any area

University			Yes	No	Total	
Foundational	Gender	Female	Count	33	12	45
			%	73,3%	26,7%	100,0%
		Male	Count	29	11	40
			%	72,5%	27,5%	100,0%
	Total	Count	62	23	85	
		%	72,9%	27,1%	100,0%	
State	Gender	Female	Count	16	5	21
			%	76,2%	23,8%	100,0%
		Male	Count	5	0	5
			%	100,0%	,0%	100,0%
	Total	Count	21	5	26	
		%	80,8%	19,2%	100,0%	

76, 85% of the repondents stated that there were employed in an area while 23,15% are unemployed. 74,75% of those employed graduates are females and 86,25% is males.73,3% of employed foundation university graduates are females and 72,5 is males. 76,2 of the repondents who are employed graduates of state universitty are composed of females.All of the male graduates of state universities participating the survey are unemployed. The rate of the graduates of foundation universities who answered "No" is 27,2% while this rate is 19,2% in state universities. The graduates who answered "No" are asked fort he reasons why they do not work in any field. The data collected is shown in Table 3.

Table 3. The Reason Why the Graduates do not Work in Any Field.

University			Unemployed	Studies	Health	Military Service	Giving Birth	Total	
Foundational	Gender	Female	Sayı	3	6	1	0	1	11
		%	27,3%	54,5%	9,1%	,0%	9,1%	100,0%	
	Male	Sayı	2	7	0	1	0	10	
		%	20,0%	70,0%	,0%	10,0%	,0%	100,0%	
	Total	Sayı	5	13	1	1	1	21	
		%	23,8%	61,9%	4,8%	4,8%	4,8%	100,0%	
State	Gender	Female	Sayı	2	1		2	5	
		%	40,0%	20,0%		40,0%	100,0%		
	Total	Sayı	2	1		2	5		
		%	40,0%	20,0%		40,0%	100,0%		

31.9% of those who answered 'no' are unemployed, 40,95% is maintaining their studies, 22,4% is not working giving, 4,8% because of health and 4,8% is working because of their military service issues. When the difference between Foundational and State Universities are surveyed, it is indicated that 61.9% Foundational University graduates maintain their studies, 23.8% are unemployed, and 4.8% of them are not employed in an area because of their military service, health and giving birth issues. Whereas 40% State University graduates are unemployed, 20% maintain their studies, and 40% of them are not employed in an area because of giving birth. When the survey is analysed depending on gender, %33.65 of females are unemployed, %37,25 maintain their studies and %24,55 are not employed because of giving birth.

The graduate participants of the survey are asked the question "Are you working in an area dealing with your university studies?" The answers of the question are in "Yes" and "No" type, and they are indicated in Table 4.

Table 4. Graduates' state of working in an area dealing with their university studies

University			Yes	No	Total		
Foundational	Gender	Female	Count	16	29	45	
			%	35,6%	64,4%	100,0%	
	Male	Count	15	25	40		
		%	37,5%	62,5%	100,0%		
	Total	Count	31	54	85		
		%	36,5%	63,5%	100,0%		
	State	Gender	Female	Count	13	8	21
				%	61,9%	38,1%	100,0%
Male		Count	3	2	5		
		%	60,0%	40,0%	100,0%		
Total		Count	16	10	26		
		%	61,5%	38,5%	100,0%		

When the graduates' state of working in an area dealing with their university studies is analysed; it is observed that 51% of graduates are not employed in their studied areas in total. The rate of those employed in their studied area is 49% in total. 51,30% of those are not employed in their studied areas are females and 48,70% are composed of males. When their employment states are observed under school basis, 63,5% of Foundational University graduates work in their related areas while 36,5% of them do not. 61,5% of State University graduates work in their related areas while 38,5% of them do not.

In the survey, graduates were asked the question "What is your reason to work in an area that you did not study at university?" The question has four optional answers; "I searched for a position in my sector but could not find it", "I realized that the sector I studied does not fit me", "I am maintaining my studies" and "Other". The answers given by the graduates are indicated in Table 5.

Table 5. The Reason Why Graduates Work in A Different Area Rather Than Working in the Sector They Studied at University

University			I searched for a position in my sector but could not find it	I realised that the sector I studied does not fit me	I am maintaining my studies	Other	Total	
Foundational	Gender	Female	Count	15	7	6	2	30
			%	50,00%	23,00%	20,00%	7,00%	100,00%
	Male	Count	11	5	7	1	24	
		%	46,00%	21,00%	29,00%	4,00%	100,00%	
	Total	Count	26	12	13	3	54	
		%	48,00%	22,00%	24,50%	5,50%	100,00%	
State	Gender	Female	Count	5	1	1	2	9
			%	56,00%	11,00%	11,00%	22,00%	100,00%
	Male	Count	0	2	0	0	2	
		%	0,00%	100,00%	0,00%	0,00%	100,00%	
	Total	Count	5	3	1	2	11	
		%	46,00%	27,00%	9,00%	18,00%	100,00%	

When the table is analysed 47% of the participants stated that they searched for a position in their related sector but could not find one. The general average rate of those stated that their related sector did not fit them is 25,5%. The rate of those who maintain their further education but do not work is 16,75% in average. When the rates are analysed depending on Foundational Universities, 48% of foundational university graduates stated that they could not fit into a position in their related sector. 22% of foundational university graduate participants stated that the sector they studied does not fit them, 24,5% stated that they are still maintaining their studies in a further education foundation. When the survey is analysed in gender depending on their state of not working in their related sector 53% of women stated that they searched for a position in their related sector but could not find it. While 17% of females stated that the related sector is inappropriate for them, 15,5% stated that they are maintaining their studies in a further education foundation. 23% of males stated that they searched for a position in their related area but could not find it whereas 0,1% stated that their related sector is inappropriate for them. The rate of the male graduates who are maintaining their studies in a further education foundation is 14,5%. The graduates in the "Other" segment stated that they are not employed because of giving birth.

Under this survey, it is aimed to determine the sector branches where the graduates are occupied. In this content graduates are asked in what branches they are occupied by giving them an alternative list of 20 business branches. In the process, assuming that some may work in more than one area, graduates are asked to mark more than one option. Depending on the graduates' answers, the evaluation is done over 11 options by eliminating 9. The business branches and their ranges in the sector are indicated in Table 6.

Table 6. Business Branches Where Graduates are Occupied in the Sector

Fields	Count	University		%
		State	Foundational	
Graphic Design	62	19	43	30
Planing	24	12	12	11
Postpress (Folding, Cutting, Saddlestitching, Binding)	23	4	19	11
Sales/Marketing	17	6	11	8
Customer Representative	16	5	11	8
Assembly+Plate	16	8	8	8
Film-CTP	12	8	4	5
Sheetfed Offset	11	4	7	5
Costing	8	5	3	4
Quality Control	8	3	5	4
Other (Web, Flexo, Photogravure, Silk-Screened Printig, Product management)	13	5	8	6
			Total	100

When business branches of the sector where graduates are occupied are analysed, it is seen that Graphic Design is the most occupied business branch with a 30% rate. Planning and Prostpress have 11%, Sales and Marketing has 8%, Customer Representative and Assembly anda plate are listed in a row. Business branches with 5% share are Film-CTP and Sheetfed Offset fields. The rate of graduates working in Costing, Quality Control branches is 4%. Under “Other” option, it is seen that the graduates are occupied in Web Offset Printing, Flexo Printing, Photogravure Printing, Silk-Screened Printing and Product Management branches.

4.2. Viewpoints About the Education Taken

On the scope of the research graduates are asked the question “Is the education taken in Vocational School of Higher Education adequate for you in your work life?” As answers, “Inadequate”, “Partly adequate” and “Adequate” are given. The result data of the question is indicated in Table 7.

Table 7. The Level of Adequateness of the Graduates' Education Taken in Vocational School of Higher Education in Work life

University			Inadequate	Partly adequate	Adequate	Total
Foundational	Gender	Female				
		Count	5	8	4	17
		%	30,0%	45,0%	25,0%	100,0%
		Male				
	Count	3	5	6	14	
	%	23,5%	35,3%	41,2%	100,0%	
	Total					
	Count	8	13	10	31	
%	27,0%	40,5%	32,4%	100,0%		
State	Gender	Female				
		Count	2	10	1	13
		%	14,3%	78,6%	7,1%	100,0%
		Male				
	Count	0	3	0	3	
	%	,0%	100,0%	,0%	100,0%	
	Total					
	Count	2	14	1	16	
%	11,8%	82,4%	5,9%	100,0%		

On the scope of the research when the answers the graduates gave are analysed, 19,4% stated that the education taken in the Vocational School of Higher Education is inadequate in work life. Depending on the table, 61,45% of the graduates stated "partly adequate" while 19,5% stated "adequate". When the difference between the adequateness level of education in work life between Foundational and State Universities is analysed, 27% of foundational university graduates stated "inadequate", 40% of them stated "partly adequate", 32,4% stated that it is "adequate". 11,8% of State University graduates stated that it is "inadequate", 82,4% stated "partly adequate", 5,9% stated that it is "adequate". These results indicate that graduates of Foundational Universities state that education is adequate more than those in State Universities. When the answers are analysed in terms of gender, 22,15% females state that it is "adequate", 61,8% state "partly adequate", and 16,05% state "adequate" while 11,75% of males state that it is "inadequate", 67,65% state that it is "partly adequate" and 20,06% state "adequate". Depending on the data, a great range of graduates express their opinions as the education taken in Vocational Schools of Higher Education is adequate in their work life.

5. Conclusion and Proposals

As a result of the research the following findings were determined.

Graduates take part in work life regardless of their educational backgrounds. The data collected indicates that graduates do not face any problems in finding jobs whether they are graduated from Foundational or State Universities. It is observed that the graduates who are not employed in an area are mainly maintaining their studies in further education foundations such as bachelor's degree.

When the employment of the graduates in their related sectors are analysed, it is clearly seen that the rates had a sharp decrease. Depending on the topic, graduates indicated that the most important reason why they do not work in their related areas is that they cannot find any positions. With reference to the findings of this research it is considered that it is a need to meet the participation of all sides at once and analyse the reasons of unemployment together and create an action plan depending on the results. In this way the effort and time spent may be used in a more appropriate way and more beneficial results may be acquired. Another result of the finding emerged in this research is that the rate of the graduates thinking their related sector is inappropriate for them are high. Thence, the necessity and obligation of a research on the reasons why their related sector is inappropriate for them has emerged. The reasons must be analysed apartly and be presented.

The findings indicate that graduates are mostly employed in Graphic Design field. Other fields are planning, marketing, customer service, and after printing. The education given and the content of the courses must be reorganised with reference to their efficiency and productivity in their fields.

It is seen that the adequateness level of education taken in Vocational School of Higher Education is under the level expected. It is proposed that professionals from both public institutions and education area must come together and revise course programs and analyse the course programs at the end of each year.

The research done is aimed to present the general frame of the graduates of Publishing and Printing Technologies Program of Vocational School of Higher Education. For this reason, it is concluded as a scientific study must be carried out on every single finding emerged on the scope of this research.

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Synchronous Interaction in Online Learning Environments with Adobe Connect Pro

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Abstract

Universities now have the potential of Web 2.0 technologies to facilitate learning opportunities to support, communicate and interact with learners of all ages from all over the world. This study focuses on the use of an online collaboration and virtual classroom system, Adobe Connect Pro, in an undergraduate distance learning programme of an international university. Virtual classroom's 74 students of the online Web Programming course including the content of .NET programming with Visual Studio 2012 participated in the study. Course's perceived teaching and learning quality, interaction, instructor's support, live tutorials, technical issues and challenges are reported as the key dimensions of the synchronous e-learning environments.

Keywords: Interaction; Synchronous Learning; Virtual Classroom; Adobe Connect

1. Introduction

During the last decade the use of computer and internet increasingly changed many concepts in our lives. The internet has also changed the way we communicate and transformed our learning. The rapid growth and integration of internet-based learning technologies has emerged the phenomenon known as e-learning.

E-learning requires a set of applications and processes such as computer-based learning, web-based learning, virtual classrooms and online collaboration. The evolution of e-learning continues with the e-learning 2.0 as the consequence of online innovations.

Generally, e-learning can be defined as an open and distributed dynamic learning environment allowing instructors and learners interact with well-designed web based technology tools in order to share and reuse course materials at any time from any place. In a professionally designed system, e-learning can provide accessible, relevant and high quality learning opportunities so that every learner can achieve his/her own personalized learning. Content delivery can be synchronous (all participants are logged on at the same time and communicate directly, e.g. Virtual classrooms, video conferencing, two-direction live satellite broadcasts) or asynchronous (participants cannot communicate without time delay, e.g. CD-ROM, self-paced courses, videotaped classes, email, discussion groups) (Gallaher, 2002).

Synchronous e-learning tools such as video conferencing (e. g. Skype), web-based seminar (e. g. Elluminate, Wimba, Blackboard Collaborate, iVisit and Adobe Connect), chat rooms and instant messaging are used to enrich

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the e-learning environments by facilitating online participation. Implementing a synchronous learning platform in an online course may improve students' participation and motivation (Hudson et al., 2012). Synchronous e-learning environments are described as virtual classrooms or digital version of classroom meetings (Almpanis et al., 2011).

Asynchronous technologies such as Blackboard, Moodle, Web 2.0 tools and learning management systems (LMS) give students the ability to communicate with their teachers and peers together with a full-time open access to content including course materials, lecture notes, tutorials, messages and recordings. However the lack of interaction or real-time learning experience in an e-learning environment can lead to a low level of participation. Contemporary e-learning technologies can offer solutions (Stewart et al., 2011) to various problems such as attracting students and providing support.

On the other hand, the new generation teachers who use technology effectively in their classrooms now play the role of mentor, coach (Volman, 2005) and facilitator (e-moderator) (Salmon, 2004) by using online technologies rather than being a transmitter of knowledge or using ICT in their classrooms. Teachers also try to adapt new technologies and educational changes into their teaching environments in order to enhance the quality of education (Ham & Davey, 2005). Teachers need to be able to give emotional and social support, observe learners' performance, provide encouragement and immediate feedback in order that students develop their own knowledge and learn at their own paces (Entonado & Diaz, 2006).

E-learning can also play a critical role in training the new generation learners of all ages from all over the world. E-learning provides collaboration and networked communities for learners to work and conduct research together or to share problems, innovations, and various course materials. E-learning can also transform the traditional paradigm of teaching and learning. Considering the value of e-learning in enhancing the skills of learners, it is possible to generate the successful and skilled students who can easily transform the information into their own knowledge.

The present study contributes to the related literature in this field of research by investigating the learners' perspective of an e-learning course which is processed in an international university's online learning platform. It is important to understand the dynamics of an e-learning environment in order to provide better e-learning opportunities for distance learners who search for effective learning. The investigation addressed the following research question:

- What are the learners' perspectives on the effectiveness, usability and the challenges of an e-learning environment?
- What implications does this study provide to improve the virtual classrooms for e-learning?

2. Research Method and Data Collection

2.1. Participants

This study was conducted over a 13-week semester during the first half of 2013 with the participation of 74 students aged between 18-44 from a distance education course of an international virtual university. Participants were undergraduates in the final year of a four-year management information systems degree. Approximately half of the participants work part time or full time during the day. Table 1 shows the characteristics of the participants.

Table 1. Characteristics of participants

	Category	Number
Gender	Female	18
	Male	56
	Total	74
Age	18-30	25
	30-40	40
	40+	9
Job	Part time	17
	Full Time	48
	None	9

2.2. Virtual Classroom with Adobe Connect Pro

A web-based, centrally-hosted platform; Adobe Connect Pro web conferencing tool which students enrolled the e-learning system's virtual classroom was used in this study. The subject being taught was Web Programming II course which is a 4th year undergraduate course module for Management Information Systems. The module ran over 13 weeks and required minimum 45 minutes of synchronous session study per week during weekdays.

Figure 1 illustrates a typical virtual classroom layout, with the video/audio, instructor, attendee list and shared whiteboard window panes. The panes such as text-based chat, polling, timeline, application and file sharing were also revealed.

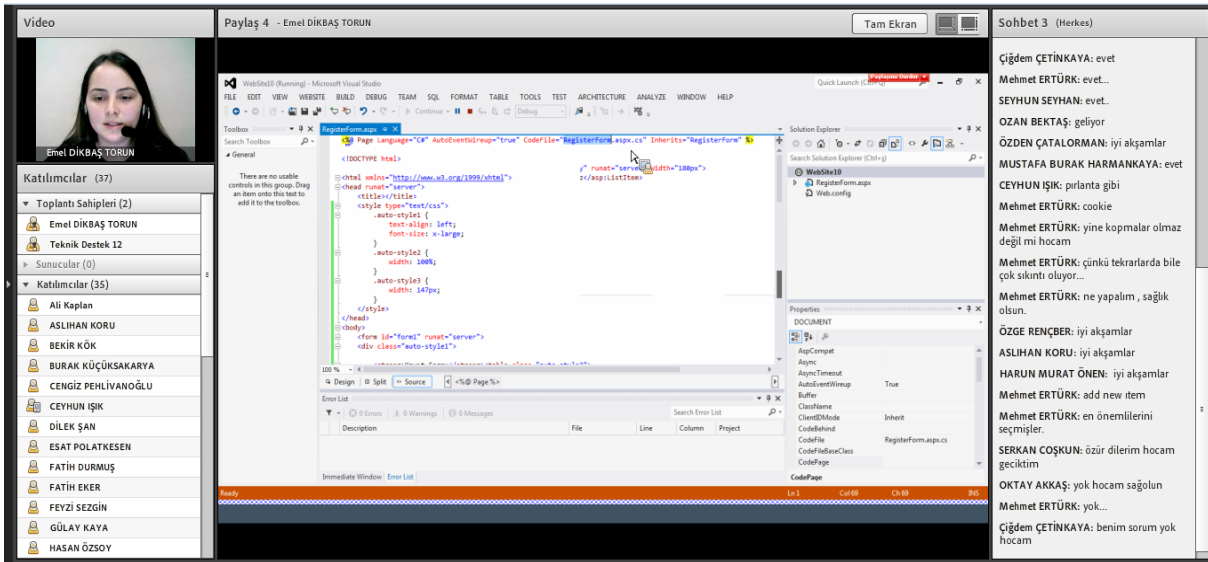


Figure 4: Screenshot of an Adobe Connect interface, showing (from left to right) camera and voice, attendee list, screen share- file share and chat panels. The instructor has taught web programming and code development synchronously with Visual Studio 2012 .NET platform.

The instructor constructed a theory-practice teaching process for this course that students had the ability to learn code writing in Web Programming II online class with live tutorials in Visual Studio .NET 2012 platform.

The first 15-20 minutes of the webinar include theoretical presentation of the course content based on the curriculum and the rest was live tutorials for coding practice with Visual Studio .NET 2012 platform. Web Programming II class consisted of the chapters such as Visual Basic .NET, Asp .NET, SQL and ADO .NET. These topics, by their nature, are not usually suitable for simple PowerPoint presentation type of webinars and have to be taught and supported by a live tutorial so that synchronous learning and communication would be more attractive for the students.

The course content based on the curriculum was available in the LMS 24/7 for the students and instructors which were programmed as interactive Flash educational softwares by the content experts and consultants. The flow of the synchronous session presentations and the tutorials of the chapter for each webinar were constructed purposefully by the instructor in order to reach the teaching and learning process goals at the end of the semester.

2.3. Data Collection

A questionnaire including 5-point Likert scale, multiple choice and short response sections was developed and administered by the researcher at the end of the semester by using the online survey (see figure 2) option of Google Drive™. The questionnaire's Likert Type section was partly adopted from Falloon (2011), translated

into Turkish and evaluated. Expert reviews were taken into consideration during scale development process. The short response section of the questionnaire was developed by the researcher and transcribed. A mixed methods approach (qualitative for participants' short responses and quantitative for analysis of 5 point Likert Type questionnaire data) research design was adopted.

Sanal sınıflar eğitim-öğretimde daha sıklıkla kullanılmalıdır *

Kesinlikle katılıyorum

Katılıyorum

Kararsızım

Katılmıyorum

Kesinlikle katılmıyorum

Sanal sınıfta düşüncelerimi aktarabilmek kolay *

Kesinlikle katılıyorum

Katılıyorum

Kararsızım

Kesinlikle katılmıyorum

Katılmıyorum

Sohbet oturumları boyunca sanal sınıfta yeni bilgi ve beceriler kazandım *

Kesinlikle katılıyorum

Katılıyorum

Kararsızım

Katılmıyorum

Kesinlikle katılmıyorum

Fig. 5: Screenshot from the questionnaire showing multiple choice and short response sections.

3. Results

This study focused on the students' perceived learning outcome, their experience and preferences related to the use of the virtual classroom and synchronous e-learning environment. Due to questionnaire section types, results were analysed quantitative/qualitatively and a large volume of data has been examined. In the questionnaire's Likert Type section results (see Table 2), a slight majority of the students (88 %) agreed or strongly agreed that virtual classrooms of e-learning improved their learning and it was nice to be a part of a virtual learning community.

Similarly, 66 students (88%) of the total 74, indicated that they had new skills in the virtual classroom during learning online. 63 students (85%) evaluated e-learning and learning in a virtual classroom as beneficial, and the same percent of the students' reported that the instructor's shared information and course materials helped them to learn. However, 23 students (32%) were neutral in ease of self expression during online sessions of the virtual classroom. On the other hand students' perception of learner isolation was critic. 26 students (35%) reported that they sometimes experienced isolation, while 36 (49%) students disagreed and 12 students (16%) were neutral about learner isolation.

Table 8: Likert type section statements and number of the responses

Statement	Number of Responses					
	1	2	3	4	5	N
The use of virtual classroom in e-learning improved my learning		5	3	33	33	74
The virtual classroom had a positive effect on my relationship with others in the e-learning environment	2	9	30	21	12	74
It was easy to interact with the instructor			2	36	36	74
It was nice to be a part of a virtual learning community		3	6	35	30	74
Sometimes I experienced learner isolation during virtual sessions	9	27	12	20	6	74
Virtual classroom had a positive effect on my studies			2	51	21	74
Virtual classroom would be used more frequently in e-learning			8	39	27	74
It was easy to express myself during virtual sessions		3	23	27	21	74
I had new skills in the virtual classroom during learning online	2	3	3	39	27	74
E-learning and learning in a virtual classroom is beneficial for students			11	27	36	74
The instructor shared us the information and course materials that helped me to learn			11	27	36	74

The results of the responses for multiple choice section reported students' perspectives on virtual classroom session time, the technical features and challenges of the environment, live tutorials that the instructor presented and the time limit of the live tutorials. All of the students (32: very beneficial, 42: beneficial, 0 neutral or non-beneficial) clearly indicated that the live tutorials were undoubtedly beneficial for their own learning processes in the virtual classroom. 16 students reported that the technical background of the virtual classroom system was inadequate and needs to be developed. Some of the students criticized the time limit of the live tutorials and the synchronous virtual classroom sessions. From students' perspective, in a virtual classroom environment the live presentation and tutorials need to be used more frequently and longer, therefore they reported that the total time (45 minutes) of the virtual classroom session was inconvenient.

The short response section of the questionnaire focused on the students' implication and critics about the e-learning and virtual classroom sessions. Due to the large volume of qualitative data some of the main transcription topics are reported in this section.

From some of the students' perspective in this course, online learning and virtual universities are the most beneficial dimensions of the e-learning in providing a degree chance for the students with difficulties and disabilities.

Students also reported that synchronous environments would be much more effective on students' learning processes, collaboration and communication as well as the instructor's teaching and communication processes when supported with asynchronous environments via LMS such as recorded virtual classroom sessions. Students indicated that the video archive of the live sessions guided and supported them too much. The students also reported those uploaded content as very useful and helpful to study. The instructor's information messages days before the next session, including the session and tutorial topics led to a kind of self-awareness at the students' side. Students' short answers concluded that instructor's informing posts remind them of the self-awareness about the course and guide them to an increased level of online presence.

The most challenging issues reported by the students were about the network connection and technical problems. In this study, as stated before, the instructor carried out the practice sessions on code development in Visual Studio .NET 2012 platform. While connecting to the platform the Adobe Connect System cancels the session for a while and this cancellation results as the loss of the internet connection. This is a big disadvantage for engagement, synchronous learning, social presence and attentional processes waiting for to be addressed in terms of quality of the connection.

4. Conclusion

In this study, findings indicated that perceived teaching and learning quality, time, live tutorials instead of slide presentations, collaboration, learning outcomes and technical issues are the valued dimensions of synchronous e-learning in a virtual classroom setting.

Virtual classroom tools as Adobe Connect are widely available for use in e-learning. However, there is a need for more research and practice on how effectively incorporate these tools in maximizing the learning outcomes. This paper has presented students' experiences and perspectives on the use of virtual classrooms of synchronous e-learning. Further, the lessons learned from this study may then be used as a basis for implementing virtual e-learning system and settings. However, more research is needed to combine different scenarios of virtual synchronous e-learning environments and guide the students to enhance their own learning outcomes. Further

research may also provide new implications for future development of virtual classrooms of synchronous e-learning.

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Teacher's subjective definition of family

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Abstract

The research purpose is to gain information about how the teachers understand the term family. The aim of this contribution is to document the main ideas underlying the teacher's subjective definition of term family. The research was attended by 45 students of a combined form of pre-primary and primary education studies (age: 20 to 52). There were appeared 95 different terms used for a definition of the family that have been aggregated into 7 categories: social roles (including kinship relations and ancestry), emotions, responsibilities (including child welfare), being together, economics (housekeeping), leisure and care. Some students were able to include in the definition families without or with adopted children, extended family (such as grandmothers and grandfathers) or some non-traditional forms of family life – these definitions have occurred only rarely. Within the framework of teaching (there is a theme *Child and the family* in the curriculum) we reveal some blind spots in understanding of family and we try to enrich student's concepts of family towards huge comprehension, a better orientation at the problematic and more open treatment of the subject for pupils. Teachers should be therefore able to explain the problematic in an acceptable, sensitive and, if possible, positive way.

Keywords: family, implicate theory, primary and preprimary education

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1. Introduction

If you ask anyone whether he/she knows what a family is, he/she would look in a surprise towards such a strange question. For sure Family is the state basis, a basic social unit (William James Durant even says that family is a *nucleus of civilization*), where a child is born to, where the child is further socialized into wider society. The answer for this simple question is not easy to answer. The society is changing and its basic unit, the family also. Well, it's time where the need of ingrained content should be redefined (Corbett, 2004).

1.1. Family

The term *family* comes from Latin *familia* - household (including servants as well as kin of the householder), from *famulus* – servant. It was first known use of the term in the 15th century in Middle English *familie*.

It can be traced in the dictionaries (Merriam Webster, n.d.) mostly 8 types of definitions of family:

1. a group of individuals living under one roof and usually under one head : household,
2. a group of persons of common ancestry: clan or a people or group of peoples regarded as deriving from a common stock: race,
3. a group of people united by certain convictions or a common affiliation: fellowship, the staff of a high official (as the President),
4. a group of things related by common characteristics: as a closely related series of elements or chemical compounds, a group of soils with similar chemical and physical properties (as texture, pH, and mineral content) that comprise a category ranking above the series and below the subgroup in soil classification, a group of related languages descended from a single ancestral language,
5. the basic unit in society traditionally consisting of two parents rearing their children; also : any of various social units differing from but regarded as equivalent to the traditional family (a single-parent family), spouse and children (want to spend more time with my family),
6. a group of related plants or animals forming a category ranking above a genus and below an order and usually comprising several to many genera, in livestock breeding: the descendants or line of a particular individual especially of some outstanding female or an identifiable strain within a breed,
7. a set of curves or surfaces whose equations differ only in parameters ,
8. a unit of a crime syndicate (as the Mafia) operating within a geographical area.

Synonyms for term family can be blood, clan, folks, house, kin, kindred, kinfolk (or kinfolks), kinsfolk, line, lineage, people, race, stock, tribe.

The scientific theory of family is usually based on basic definition that the nuclear family is a universal institution for nurturing children. Three features of family follow from this instruction developed the world famous Bronislaw Malinowski (Skalnik, 2006):

- family is a bounded social unit,
- families have shared place,
- family members have emotional ties.

Family can also be consider as institutionalized social formation of at least three persons, among whom there are parental, family or marital ties (Stašová, 2001).

Some authors further claim that it is a unit whose primary function is not to give birth to children but to socialize them. Parsons (In Parsons, & Bales, 1956) attributes to unit further characteristics:

- family is a solidary group stratified by ascribed statuses such as age and gender,
- family is a cooperative unit; families shared the principle of division of labour.

Becker (1993) adds that:

- family has collective goals.

Family members' interests that differ from their family ones might be viewed as 'deviant'. This is undoubtedly true in families' interests that differ from their society ones might be viewed as abnormal, strange or deviant.

Some authors point out on many other aspects such as an isolated family, lesbian/gay family, biological/blood family, peaceful and nurturing family versus male domination or domestic violence, patriarchy/matriarchy and so on (Tae, 2009).

1.2. Implicit theories

The notion of implicit theory comes from Latin *implico* (to weave) and means: inclusive, contained but also failed directly or understanding itself. Implicit (also subjective, naive) theory is designation of laical theoretical concepts, so concepts which are made by common people inadvertently and unconsciously about the life and the world all around (sometimes in this context also labelled as knowledge and conviction - beliefs, personal construct, mental representation or mental folk or naïve models, further see Sedláková, 2000).

It can be defined as relatively stable sets of imaginations, definitions and knowledge connected with specific phenomena (e.g. normalities, learning, life origin etc.) (Groeben, Scheel, 2001). Rosch and Lakoff (Lakoff, 1987) understand as set of types or categories purely descriptive character (e.g. we can on a request to describe a normal family or to list several typical examples of problematic families). These unconscious mind contents reflect towards inner reality (e.g. let us answer the question what is my own family, what type of family I want or is my family normal?) and the behaviour and acting in the outside world (e.g. I could have lived in this family or something does not add up here, they look strange to me). Although people tend to have a clear imagination about a prototype they are usually not able to justify and mark the boarder for the notion (e.g. they are able to mark certain cohabitation as a family without being able to justify it etc.). In the area of implicit theories it is common while explanation the cause and effect is confused and many other similar "symptoms" (Furnham, 1988). Therefore it is different from scientific studies which always have well thought and certified system of statements interpreting following phenomenon.

The establishment of implicit theories is presumed by analogical development of attitudes: either by the way of unwitting acceptance of social surrounding (including media contents) and/or on the base of evaluating own experience (Sternberg, 1985).

The general purpose of existence of implicit theory is the interpretation of individual and social facts, works as a tool for explanation and prediction of human behaviour.

To penetrate into the interior of implicit theories is possible by linguistic utterances. Research is developed since such characteristics. We have recorded wide range of methods for obtaining data for this study of implicit theories. (Benveniste, Lecouteur, & Hepworth, 1999, Cameron, 2002, Howarth C., Foster, J, & Dorrer N., 2004). It is possible to use any of listed methods or their combinations for study of implicit theories. As far as we are concerned that it is possible to use any method. But however any method used the emphasis must be placed on understanding and verification of gained model of implicit theory by the informant him/herself.

2. Method

2.1. Purpose of study

Research questions for this paper are three:

1. Which categories are used by teachers to explain the concept of family?
2. How many categories are used by teachers to explain the concept of the family?
3. Where are the blind spots in the teacher's implicit theories of family?

2.2. Participants

This part of research was conducted in 45 students of part-time master study of pre-primary and primary education. It is a study when working and therefore all the respondents are working in education at the same time.

Forty-four women and one man participated in the research which is a reflection of a typical state of Czech education which is mainly in the field of pre-primary and primary education highly over-feminized.

The research group in terms of marital status is described in table 1

Table 9: Research sample - marital status: Frequencies (N=45)

<i>Marital Status</i>	<i>Frequency</i>	<i>Percent</i>	<i>Cumulative Percent</i>
1 single	16	35,6	35,6
2 married	25	55,6	91,1
3 divorced	4	8,9	100,0
<i>Total</i>	<i>45</i>	<i>100,0</i>	

Table 2 describes a research group in terms of a number of children.

Table 10: Research sample - number of children: Frequencies (N=45)

<i>Number Of Children</i>	<i>Frequency</i>	<i>Percent</i>	<i>Cumulative Percent</i>
0	18	40,0	40,0
1	5	11,1	51,1
2	17	37,8	88,9
3	3	6,7	95,6
4	2	4,4	100,0
<i>Total</i>	<i>45</i>	<i>100,0</i>	

Table 3 describes a distribution of research sample in terms of variable age.

Table 11: Research sample - age: Descriptive statistics (N=45)

	<i>Minimum</i>	<i>Maximum</i>	<i>Mean</i>	<i>Std. Deviation</i>
Age	20	52	34,24	9,333

2.3. Method

The contribution presents partial results of a wider research project. The proceeded data have been gained by the method of free explanation. The instruction for students of combined pedagogical study was: *Imagine that*

you met someone who had not heard anything about the term family (child, stranger, UFO, Mr No...). Explain to Mr No, what is the meaning of family term.

2.4. Procedure

The students of education are asked in several psychological disciplines to work with different themes and methods. In the course of social psychology there is address issue of family. At the start of the lesson the students are confronted with their implicit theories of family. Firstly, they are asked to imagine that they met someone who had not heard anything about the term family (child, stranger, UFO, Mr No...), the instruction is: Explain to Mr No, what is the meaning of family term. They subsequently explain what is similar and what is different in term of: marriage, cohabitation, bloodline, wider relationships. In the course of Research methods the teachers fill the method of repertory grid, where are the feedbacks for choice of elements selected by both introduced poles of behavioural, emotional and cognitive elements of posture and the most frequent stereotypes (e.g. Family where we would like to live, Typical Czech family). In the course of Czech language the students generates adjectives for description and family evaluation. This contribution refers about results gained by the first mentioned method.

2.5. Data processing

The obtained answers of the teachers were transcribed into PC and processed in two phases.

The first phase was based on the procedures of qualitative methodology. The data was pre-processed using the creation of clusters (trsy) described by Miovský (2006): reduction of the first order (omission of the unimportant, rhetorical padding etc.) and segmentation of statements to units of meaning. Each unit of meaning corresponded either to a word or phrase (e.g. Love, they love each other). Each unit was assigned a label in the form of a noun (i.e. the label of the units which were not nouns was created with substantivization, e.g. they love each other = love, they return to each other = return). The labels were categorized based on the methods of similarity, overlap, contrast and comparison (i.e. the labels protection and support were put into the category care as the contents of both fall under the phenomenon of being together, another example: the labels loneliness and togetherness were both put into the category being together, since they refer to the two sides of the same phenomenon). The categorization was done by two independent observers according to the following rules: 1. the categories are independent of each other, 2. the categories describe phenomena on the same level of generality, 3. the maximum number of categories is 15. Note: We are aware of the fact that despite our effort to make independent categories their character can be fuzzy (in mathematic terms, they undoubtedly correlate to some extent). We consider this to be a natural consequence of the categories' relation to the phenomenon of family, therefore we believe our work with them as independent to be justified. The final number of categories was 7, they are described in more detail in the section Results.

The second phase was based on the procedures of qualitative methodology: the authentic answer of each respondent was coded using the system 0-1, i.e. each answer was assigned a code based on which of the 7 categories it mentioned. The system of coding was continuously verified and validated comparing the generalized terms to the original transcriptions (e.g. some categories were re-named to depict the content of the terms in them as precisely as possible). The data was further processed using the standard mathematic and statistical procedures.

3. Results

Question 1: Which categories are used to explain the concept of family?

Categorization enabled to identify 7 categories of units of meaning, which the teachers used to describe the term family (examples of the labels of some units are given in brackets)

- social roles – partnership, marriage, mum, dad, two men/women raising children, children, grandma, grandpa, relations, generation, lineage, children without family, children from children’s homes etc.,
- emotions – feelings, good feeling, love, happiness, well-being, security, trust, intimacy, sadness (result of loneliness), emotional needs etc.,
- responsibilities (including child welfare) – authority, duties, education, organization, rules, work, contribution,
- being together – being together, cooperation, coexistence, sharing, belonging together, community, togetherness, unity, loneliness, reclusiveness etc.,
- economics (housekeeping) – housing, house, place (where one feels good), household, management, home, background, material security,
- leisure – hobbies, free time spending time together,
- care – protection, care, support, help, concern, refuge, reliability (relying on one another.)

Table 12: Categories of terms used for definition of family: Frequencies (N=45)

<i>Category</i>	<i>Frequency</i>	<i>Per cent</i>	<i>Cumulative Per cent</i>
Social roles	30	20,41	20,41
Emotions	31	21,09	41,50
Responsibilities	10	6,80	48,30
Being together	32	21,77	70,07
Economics	19	12,93	82,99
Leisure	6	4,08	87,07
Care	19	12,93	100,00
<i>Total</i>	<i>147</i>	<i>100,00</i>	

Table 4 shows that the units which were used most to define the term family belong to the categories of *being together*, *emotions* and *social roles*, each representing approximately one third of the used units. Roughly one tenth is represented by *care*, one tenth by *economics* and the categories *responsibilities* and *care* constitute one twentieth each.

Question 2: How many categories are used by teachers to explain the concept of the family?

A new variable giving the total of the used categories was introduced and descriptive statistical measures were computed. The results are presented in Table 5.

Table 13: Number of categories used: Descriptive statistics (N=45)

	<i>Minimum</i>	<i>Maximum</i>	<i>Mean</i>	<i>Mode</i>
Number of categories used	1	6	3,2667	4

Figure 1 shows the numbers of teachers (y axis: frequencies) who used a given number of categories (x axis: number of categories). It makes evident that most teachers used 3 to 4 categories.

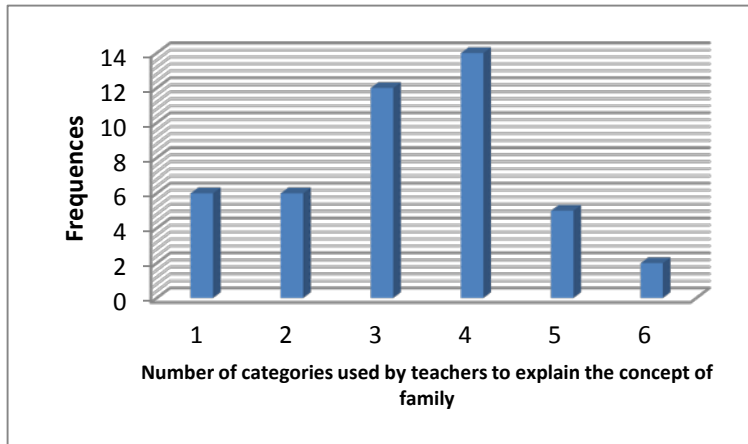


Fig. 1. Number of categories used by teachers: Descriptive statistics (N=45)

Question 3: Where are the blind spots in the teacher's implicit theories of family?

This question will be answered by method of comparing subjective theories with the objective scientific theories in the discussion part of this paper.

4. Discussion

In order to reveal the implicit theories of family in primary and pre-primary education teachers we used the method of free explanation. The teachers were asked to explain the term family to someone who does not know it yet. The explanations were segmented into units of meaning, which were assigned a label formed by substantivization (all word classes were converted into nouns). 95 labels were identified in the 45 explanations. As this number is too high, the labels were categorized. **The explanations of the term family given by primary and pre-primary education teachers were based on the following seven key categories** (descending order according to frequency): *being together*, *emotions*, *social roles*, *care*, *economics (housekeeping)*, *responsibilities (including child welfare)*, and *leisure*.

The first sight makes evident the similarity of subjective concept of the term family (connotation) with the objective definitions (referent). The eight definition of family included in Merriam Webster dictionary (n.d.) and quoted in the theoretical chapter of this paper (introduction) contain units of meaning which could be put into the same categories: *being together* (common, series), *emotions*, *social roles* (unit, group, individuals, persons, parents, descendants, clan, related common ancestry, livestock, stock, line, race, genus), *care*, *economics* (living under one roof, household, operating within a geographical area), *responsibilities* (one head, rearing their children), *leisure* (spending time).

Some labels which did not occur in the subjective theories of the teachers include: people united by certain convictions (conviction), common affiliation, similar properties, line of a particular individual especially of some outstanding female or an identifiable strain within a breed, a set of st differ only in parameters, and any of various social units differing from but regarded as equivalent to the traditional family (a single-parent family), spouse and children. These definitions/labels represent categories which seem to represent the blind spots in the subjective theories of the teachers and which could point to potential hidden problems (e.g. if the questions of race, multicultural or bilingual families and emigration (or other question connected with the missing categories) arise during the discussion of the topic Child and family at school). Hornáčková (2011) says in this context that teacher must be able to apply activating educational methods, situational, staging methods, including group work and cooperative forms of striking the problem solving tasks and situations, using the methods of experimentation and creative drama in its diverse forms. It is all about emotional intelligence (Hornáčková, 2011, 83).

On the other hand, we may state that the **explicit definition of the term given in dictionaries do not enough reflect the socio-emotional element of the term** – family means a coexistence of people who spend their time together, feel good and safe together and if they lose their background, they experience sadness and discomfort.

Cox (2009), for instance claims that family fulfils all six functions that are necessary for the maintenance of society:

1. socialization for children to become participating members of the society,
2. individual goals harmonized with the values of society,
3. supplying for intimacy and emotional gratification and dealing with emotional crises and maintaining the sense of purpose,
4. distribution of goods and services,
5. provision for solving conflicts and maintaining order,
6. replacements for dying members.

This agreement of views is something to be found in contemporary literature as well as in sources which could be considered older. Ruth Nanda Ashen's book from 1946, for instance, comments on the "greater weight" of husband-wife relationship (1949: 78) or economic considerations (1949: 421).

Current theories and knowledge also stress the increasing influence of family on leisure and recreation (Wilson, 2001), which appeared as an independent category in our research.

5. Conclusion

In order to reveal the implicit theories of family in primary and pre-primary education teachers we used the method of free explanation. The teachers were asked to explain the term family to someone who does not know it yet. The explanations were segmented into units of meaning, which were assigned a label formed by substantivization (all word classes were converted into nouns). 95 labels were identified in the 45 explanations, they were merged into seven categories: *being together*, *emotions* and *social roles*, each representing approximately 1/3 of the used units; roughly 1/10 is represented by *care* and *economics* and the categories *responsibilities* and *care* constitute 1/20 each. Most teachers used 3 to 4 categories. The teacher's definition of family including all categories could be: **family is a social unit consisting usually of mom, dad and who love each other, parents are caring for children and raise them, parents provide care and support to their children and each other, relationship is based on reciprocity, the coexistence takes place in the household, home and in free time.**

Some labels which did not occur in the subjective theories of the teachers include: people united by certain convictions (conviction), common affiliation, similar properties, and any of various social units differing from but regarded as equivalent to the traditional family (a single-parent family), spouse and children. These

definitions/labels represent categories which seem to represent the blind spots in the subjective theories of the teachers and which could point to potential hidden problems (e.g. if the questions of race, multicultural or bilingual families and emigration (or other question connected with the missing categories) arise during the discussion of the topic Child and family at school).

Current explicit theories and knowledge also stress the increasing influence of family on leisure and recreation, which appeared as an independent category in our research. On the other hand, we may state that the explicit definition of the term given in dictionaries do not enough reflect the socio-emotional element of the term – family means a coexistence of people who spend their time together, feel good and safe together and if they lose their background, they experience sadness and discomfort - which is the moment that our teachers perceive very sensitively.

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Teachers' opinions regarding the effects of the usage of out-of-school learning environments on students' academic achievement and anxiety towards science

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Abstract

Recent years in science education, especially in teaching science subjects that are generally thought to be difficult, the importance of out-of-school learning environments that bring formal education and informal education together under the same roof in order for the students to achieve their own learning, started to increase. This situation requires teachers to be aware of those environments, how and when those environments can be used, in which aims and objectives of teaching and learning process those environments can be used, and the effect of activities conducted in those environments to students affective, cognitive and kinesthetic features. Therefore, in this study the aim was to investigate science and technology teachers' perceptions regarding the effect of usage of out-of-school learning environments in science and technology courses to students' academic achievement and their anxiety towards science. In this study descriptive qualitative research was used. The data of the study were obtained in 2011-2012 academic year, through semi-structured interviews conducted with 36 science and technology teachers who work in Gölcük town which is a district of Kocaeli Province. Almost all teachers highlighted positive effects of using out-of-school learning environments during the teaching and learning process' on the students' academic success and anxiety levels towards science by presenting a variety of reasons. On the other hand, the remaining teachers indicated that out-of-school learning environments affect the students' skills and qualities apart from academic achievement and anxiety towards science.

Keywords: Out-of-School Learning Environments, Teachers' Opinions, Science and Technology Teaching, Informal Education, Academic Achievement and Anxiety towards Science.

1. INTRODUCTION

Informal education which means lifelong learning is a process that begins with the birth of the individual and continues until the end of their life (Eshach, 2007). With the fact that informal education lasts lifelong, any place or environment the human being reaches is named as an informal learning environment. Mass communication tools such as television, radio, newspaper, magazine, internet and social spheres such as botanical gardens, family meetings, zoos, shopping malls, books, cyber museums, factories, stores, aquariums, libraries, houses, science centers and nature centers (caves, lakes, rivers, coasts etc.) are shown as learning environments that provide substantial resources while learning (Hannu, 1993; Howe and Disinger, 1998; Hill, Hannafin and Domizi, 2005). When such environments are used within a plan and schedule in order to make acquisition possible, they are called out-of-school learning environments (Hannu, 1993). Science, which brings the phenomena and events in

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life into our attention and is the daily life itself, is a discipline that often takes place in this kind of environments. In spite of this, science which often helps the individual to get to know both thyself and the world around them lifelong is perceived as a course that is just in the school curriculum and the fact that it involves many practical applications while the issues are mainly abstract makes it seem like a discipline the students are having a hard time understanding from time to time. However the goal with science education is to enable individuals to interpret the natural events along with the nature itself, help them become literate in science and get them to use their five senses to create solutions for problems (Türkmen, 2010). In order to achieve this goal, the education activities in the schools are performed mainly with scientific symbols and with a fair amount of ties to the events, phenomena, objects in daily life while distant from the real world. In spite of this, with the out-of-school learning environments' usage in a framework of plans and schedule, the individual will succeed on performing a complete and meaningful learning while forming close relations with the notion and objects that are in the science classes (Ramey-Gassert, 1997). At this point, the usage of informal learning environments such as zoos, museums and science centers is attracting more attention from the science teachers day by day (Smith, McLaughlin and Tunnicliffe, 1998). There are researches in the literature which emphasize that the informal learning environments used along with the formal education offer authentic experiences to the students, make it possible to interact with real objects, keep their curiosity and attention alive (Pedretti, 1997; Meredith, Fortner and Mullins, 1997), help the individuals understand the notions of science and take responsibility in their subsequent learning (Olson, Cox-Petersen and McComas, 2001). In addition, there are also studies in the literature which show that the out-of-school learning environments benefit the students in regards of success, motivation, attitude, problem solving skills, and their interest in science (Bozdoğan and Yalçın, 2006; Ramey-Gassert, 1997; Braund and Reiss, 2006; Paris, Yambor and Packard, 1998; Falk and Adelman, 2003; Yavuz and Balkan Kızılcı, 2012).

Although out-of-school learning environments are often used in science teaching in the developed countries, they are still not being used at the desired levels in Turkey. There are not many studies in the literature that present the effects of the usage of out-of-school learning environments in science teaching on the cognitive and affective skills of the students. Due to the rising importance of these learning environments that are in the education activities, teachers are obliged to be aware of the effects of the out-of-school learning environments on various skills of the students. In this regard, it is vital to elicit the opinions of the teachers who are the executives of these activities, on the matter. Therefore the goal of this study is to research the opinions of the science and technology teachers regarding the effects of the usage of out-of-school learning environments on students' academic achievement and anxiety towards science.

2. METHOD

This research which aims to elicit the opinions of the science and technology teachers regarding the effects of the usage of out-of-school learning environments in the science and technology courses on students' academic achievement and anxiety towards science has been based on the descriptive qualitative research approach.

2.1. Study Group

The study group of the research consists of 36 science and technology teachers who work in Gölcük town which is a district of Kocaeli Province in the 2011-2012 academic years. Some of the descriptive features of the teachers were presented in Table 1.

Table 1. The features of the teachers who are in the study group.

Features		Frequency	Rate	Total
Gender	Female	25	69.44	100
	Male	11	30.55	
Profession	Science and Technology Teacher	33	91.67	100
	Chemistry Teacher	1	2.78	
	Art-Science, Biology	2	5.55	
Worked for	1-5 years	18	50.00	100
	6-10 years	10	27.78	
	11-15 years	5	13.89	
	16-30 years	3	8.33	
Teaching in the classes of	6th,7th and 8th grade	35	97.22	100
	8th grade	1	0.97	

2.2. Data Collecting Tools

In this study, in order to research the opinions of the science and technology teachers regarding the effects of the usage of out-of-school learning environments on students' academic achievement and anxiety towards science, semi structured interviews were used. During the preparation of the semi structured interview form for the research, the literature has been surveyed, the relevant questions have been formed and the experts' opinions have been taken (3 Science Educators). Upon the completion of the required adjustments, in order to identify the opinions of the science and technology teachers regarding the effects of the usage of out-of-school learning environments on students' academic achievement and anxiety towards science, interview forms were created and applied in one session.

2.3. Data Analysis

Content analysis was performed in the process of analyzing the interview records which were transcribed in the scope of the research. The collected data was coded by two researchers independent of each other. Themes were created upon achieving a consensus. The collected data was made meaningful with content analysis by putting them under the topics of code and theme depending on certain relations and similarities (Yıldırım and Şimşek, 2011). The opinions of the teachers which were collected in the study are given in italic within quotation marks and symbolized as T1, T2, T3 ...T36.

3. RESULTS

The findings of the interviews with the teachers are presented in this part.

The first stage question directed to the teachers during the interviews in the scope of the research is specified as "Do you think that using out-of-school learning environments affects the academic achievement of the student? How?" When the answers of the teachers given to this question are examined, it is seen that while

94.44% of them state that out-of-school learning environments affect the academic achievement of the student, 5.56% of them emphasize that this kind of environments does not affect the academic achievement of the student.

Table 2. The Opinions of the Teachers Regarding the Effects of the Usage of Out-of-School Learning Environments on the Academic Achievement of the Student

Data Source	Theme	Code	Teachers	Frequency Rate (f)	Percent age (%)	Overall Percentag e (%)		
The Usage of Out-of-School Learning Environments Affecting the Academic Achievement of the Student	Learning	Permanent Learning	T1, T10, T13, T18, T20, T26	6	8.96	37.32		
		Learning via Experiencing	T6, T15, T16, T17, T19, T24, T31	7	10.45			
		Learning via Using 5 Senses	T2, T3, T7, T14, T17, T26	6	8.96			
		Efficient Learning	T2, T10, T11, T14, T17	5	7.46			
		Easy Learning	T31	1	1.49			
	Supporting	Answering the Questions	T3, T30, T36	3	4.48	31.36		
		Converting Abstract Knowledge to Concrete Knowledge	T7, T9, T28	3	4.48			
		Creating A Base for Further Learning	T20, T28	2	2.99			
		Consolidation	T16	1	1.49			
		Choice of Profession	T12, T20, T22, T31, T33, T34	6	8.96			
		Allowing to Form Connection With Daily Life	T3, T4, T32	3	4.48			
		Recovering from Memorization	T18, T32	2	2.99			
		Specifying Fields of Interest	T31	1	1.49			
		Affective Domain	Liking the Course	T8, T24, T27	3		4.48	5.97
			Improving the Interest in the Course	T27	1		1.49	
	Other	Preventing Forgetting	T20, T32	2	2.99	8.96		
		Increasing Creativity	T5, T29, T35	3	4.48			
		Increasing Motivation	T8	1	1.49			
	Skills	Increasing High Level Scientific Skills	T23	1	1.49	16.42		
		Increasing Scientific Period Skills	T5, T35	2	2.99			
Observing With A Different Point of View		T7, T22, T33	3	4.48				
Questioning Skills		T16	1	1.49				
Analyzing		T22	1	1.49				
	Implementation	T9, T19, T32	3	4.48				
Total			67	100	100			

When the opinions regarding the effects of using the out-of-school learning environments on the academic achievement of the student in Table 2 are examined, it is seen that 37.32% of them fall into the theme of learning. While 31.36% of the statements are about the support of out-of-school learning environments, 16.42% of them emphasize the improvement of skills and 8.96% state the contributions. The rest which is 5.97% includes the affective domain.

It is spotted that the teachers who stated that out-of-school learning environments do not affect the academic achievement indicate that this kind of environments affect different notions (i.e. general knowledge, point of view) rather than academic achievement.

Some direct quotations from the interviews with teachers:

“It affects. At least the student’s motivation towards the course increases. ...the student likes science and shows interest regardless of choice because there are trips. Increases the rate of achievement.” (T8)

“...Yes it will increase their chance of success because they implement what they have learned in the courses, in regards of feeling curiosity for the things they couldn’t understand.. We can consolidate with the questions they will ask, there might be a contribution like this.” (T16)

“It will affect. It will provide long term knowledge, there won’t be memorizing.” (T18)

The second stage question directed to the teachers during the interviews in the scope of the research is specified as “Do you think that using out-of-school learning environments affects the student’s anxiety towards science? How?” When the answers of the teachers given to this question are examined, it is seen that while 91.67% of them state that out-of-school learning environments affect the student’s anxiety towards science, 8.33% of them emphasize that using this kind of environments does not affect the student’s anxiety towards science.

Table 3. The Opinions of the Teachers Regarding the Effects of the Usage of Out-of-School Learning Environments on the Student's Anxiety Towards Science

Data Source	Theme	Code	Teachers	Frequency Rate (f)	Percentage (%)	Overall Percentage %
The Usage of Out-of-School Learning Environments Affecting the Anxiety of the Student Towards Science	Supporting	Learning Entertainment	With T3, T4	2	3.39	47.44
		Understanding Science	T7, T16, T28, T32	4	6.78	
		Converting Knowledge to Concrete Knowledge	Abstract T18	1	1.69	
		Recovering Memorization	from T1, T18	2	3.39	
		Allowing Connection With Life	to Form Daily T2, T7, T9, T15, T16, T17, T20, T21, T22, T23, T26, T27, T30	13	22.03	
		Simplifying the Course	T18, T20, T22, T31, T34	5	8.47	
		Understanding Science isn't Difficult	That T27	1	1.69	
	Affective Domain	Interest Towards Science Increases	T6, T16, T21	3	5.08	35.58
		Adopts Positive Attitude Towards Science	T5	1	1.69	
		Fear Towards Science Will Decrease	T1, T17	2	3.39	
		Attachment for the Course Will Increase	T7, T19, T28, T33, T35, T36	6	10.17	
		Course Will Become Amusing	T2, T3, T13, T28, T31, T36	6	10.17	
		Will Taste the Feeling of Success	T7, T25	2	3.39	
		Provides Comfort	T28	1	1.69	
	Effect	Increasing Imagination	T29	1	1.69	16.93
Increasing Creativity		T29	1	1.69		
Facilitate to Remember		T13	1	1.69		
Increasing Motivation		T3, T4	2	3.39		
Provoke Curiosity		T5, T24	2	3.39		
Preventing Prejudice Towards the Course		T11, T12, T32	3	5.08		
Total			59	100	100	

When the opinions regarding the effects of using the out-of-school learning environments on the anxiety of the student towards science in Table 3 are examined, it is seen that 47.4% of the statements are about the fact that the usage of out-of-school learning environments is supportive, while 35.58% talk about the affective domain and 16.93% have listed the effects.

It is spotted that the teachers who stated that the usage of out-of-school learning environments do not affect the anxiety of the students towards science indicate that this kind of environments affect different notions (i.e. curiosity, listening attentively) rather than the anxiety towards science.

Some direct quotations from the interviews with teachers:

“...it will increase the interest; the child will see what kind of a world science is. ...the child will think that it’s related to everything in life and see that everything in our life depends on science, that everything has a scientific explanation, that will increase the interest and when the interest is increased the chance of success and willingness will increase as well, and the level of anxiety will drop accordingly.” (T21)

“Just the same the anxiety goes away as well. ...Curiosity is also developed by the students, anxiety goes away and right after that the rate of success increases.” (T24)

“Of course they will understand that it’s not as difficult as they think because science is usually thought of as difficult. They will understand that it’s not like that and it’s from the life itself.” (T27)

4. DISCUSSION AND CONCLUSION

The aim of this research was to elicit the opinions of the science and technology teachers regarding the effects of the usage of out-of-school environments in the science and technology courses on students’ academic achievement and anxiety towards science. In this direction, when the opinions of the teachers regarding the effects of the usage of out-of-school learning environments on the students’ academic achievement and level of anxiety towards science are examined, it is seen that almost all of the teachers emphasize the fact that with the use of out-of-school learning environments the rate of academic achievement of the students will change positively. There are many studies in the literature which state that the out-of-school learning environments have a positive effect on the academic achievement of the students (Ayres and Melears, 1998; Ramey-Gassert, 1997; Rennie, 1994; Yavuz ve Balkan Kılıcı, 2012). The causes of this effect can be listed as follows: provides information rich environments for learning, by using out-of-school learning environments to support the education activities that are carried out in formal education reinforces previous learning and improves the science process skills of the students (Ramey-Gassert, 1997; Pedretti, 1997; Melber and Abraham, 1999; Randler, Kummer and Wilhelm, 2012). In spite of this, a limited number of teachers stated that the activities which are performed in the out-of-school learning environments are important in terms of the individuals’ self improvement while emphasizing that the general knowledge and the point of view of the students might be affected rather than their academic achievement. The reason for this is the fact that they perceive the purpose of the visits to this kind of environments as sightseeing and entertainment, therefore not being able to associate many living beings, events and objects they may see or have seen with the science and technology course.

Almost all of the teachers in the research emphasized that with the use of out-of-school learning environments the level of anxiety of the students towards science will decrease. The reasons behind this effect are explained with the fact that it supports the science and technology course and affects the affective skills of the student. In this scope, the teachers have noted that the activities that are carried out in the out-of-school learning environments will cause the level of anxiety to decrease by showing that the science and technology course is not as difficult as the students perceive it to be and that this course can be performed in an out-of-school learning environment as an interesting and entertaining course. Dohn (2011) states that one of the reasons the activities conducted in a zoo attract the attention of the students is the novelty and diversity in the environment while the students have also indicated that they have moved away from the boring education in the classroom. This situation may also affect the opinions of the students towards the course. Nevertheless, some teachers have explained that although they state that the course will be carried out as more interesting and entertaining in these environments, this will not affect the level of anxiety of the students towards science simply due to the fact that the courses are already being conducted in an entertaining way and it affects different features of the students. In a parallel to most of the opinions of the teachers, there are studies in the literature which express that various affective features are affected positively in the out-of-school learning environments (Bozdoğan and Yalçın, 2006; Ramey-Gassert, 1997; Braund and Reiss, 2006; Paris, Yambor and Packard, 1998; Falk and Adelman, 2003).

As a the result of the research, it is stated and supported with the teachers' opinions that with the use of out-of-school learning environments in the education activities, the academic achievement and anxiety of the students towards science will be affected positively, and these results have contributed to the literature about the out-of-school learning environments in science education in Turkey. In addition to this study the change in various cognitive and affective skills of the students with the implementations carried out in different out-of-school learning environments can be researched.

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Teachers perceptions towards modules used in vocational and technical education

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Abstract

This paper is a situational research aiming at determining teachers' perceptions with regard to Modules Used in Vocational and Technical Education. The data were collected from 12 teachers via semi-structured interview method. Context analysis is applied for the data. According to the data, teachers have positive ideas in some main points with regard to the modules, but they stated that there were very important problems in the process of their application. There are two main reasons for these problems. First, modules were not prepared by specialist and they were very far from real business life. Teachers' perceptions towards modules are not different from each other in three different institutions.

Keywords: SVET, Vocational Education, Modular Education, Module

1. INTRODUCTION

In our age in which technology and industry show a rapid development, it is a fact that this change has significantly affected education functionally and structurally. It is a natural consequence of the initiatives of the use of technology, modernization and industrialization of societies. From this perspective, it can be said that the rapid development of technology and industry has closely influenced particularly technical and vocational education.

The project of strengthening the system of vocational education and training in Turkey (SVET) which is supported by the European Commission and aims to strengthen the vocational education and training system accordance with the principles of the socio-economic needs and lifelong learning has been implemented in stages at all vocational and technical education institutions starting from the academic year 2005-2006. With the realization of the SVET project, modules which aim to provide vocational qualifications have been developed to be used as teaching material (MEB, 2006).

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The module consists of teaching experiences having a beginning and an end, based on individual teaching, demonstrating integrity in itself, coordinated within a systematic framework and follows a specific order. Knowledge and skills are provided for at least one qualification through each module (Doğan, 1997;MEB, 2006).

It is essential that the introduction part that contains general introductory information of a module should include an assessment method that will demonstrate to what extent objectives were achieved by behavioural objectives, materials and learning activities to be realized. (Akgül, 2004; Kaykı, 2008; Gömleksiz, 1999; Özkan, 2005).

The sections of modules prepared under SVET are in teacher's guide book; table of contents, descriptions, introduction, learning activities (purpose, research, information issues, applications), assessment and evaluation (objective tests, practical tests, practice evaluation), the module evaluation (objective tests, performance tests and evaluation), answer keys, recommended resources are expressed in the form of references (MEB, 2006).

Description part is on the top of the module. This section is important in terms of its functions such as introduction of the module, the guidance of the users and providing motivation. The aim of description part is to draw attention to the subject by giving general information about the module, information on how students should work by emphasizing the significance of the module, and points related to the module (Akgül, 2004; Akgül, 1999). In the description part of modules prepared under SVET; there are general information (code, area, branch / occupation, name of the module), module description, duration, prerequisite learning, proficiency, purpose of the module, education and training environments and equipments, and information on the assessment and evaluation (MEB, 2011).

In introduction, there are explanations for students and these explanations aim to motivate students for module. Introduction should provide information on the importance of module in field- profession and the use of gains in professional skills and on everyday life (Altın, 2003).

The Part of learning activities should include the activities organized to achieve the goals set out at the beginning of the module and equipments to be utilized (Gömleksiz, 1999). In this section, information and applications must be presented in a clear, understandable way. Text portions should be supported by pictures, charts and graphs, and pictures, charts and graphics should be referred to in narrative parts. Information The information given on the information should consist of information that will support the application activities (Akgül, 2004; Altın, 2003). The part of learning activities of the modules prepared under SVET contains purpose, research, the contents of learning activities and the application part.

In the part of assessment and evaluation, there are assessment and evaluation tools by which students evaluate themselves at the end of each activity to take necessary measures by determining the attainment levels to the objectives of learning activities during the process of learning and teaching. The evaluation tools in question are objective and applied tests according to the characteristics of behaviour to be measured (Altın, 2003). Techniques can be employed such as tests including self- evaluation, teacher evaluation observation forms, student evaluation report, multiple choices, true-false, matching, completion question types. The individual's own self-assessment, teacher observation forms to be followed by the assessment of the students will be taken during the event, the assessment reports, multiple choice, true-false, matching, such techniques can be applied to complete the evaluation tests of question types (MEB, 2006; Akgül, 2004).

In addition to the features described above, it is considered beneficial to include a visually striking designed cover page and information on module (name, year of publication, location, etc.) as well as a small survey for the views of students about module (Akgül, 2004). Moreover, a module should have the feature of compliance with the objectives, accuracy, precision and reliability in knowledge, attractiveness, technical competence, promoting,

effectiveness, compliance with student, usability, usability individually and in a group, compliance with cognitive, affective and psychomotor behaviours (Nazlı, 2010).

As the modular system is economical, cover broad masses socially, meet individual requirements; respond to regional differences, and is applicable by local authorities and all parties, it makes modular teaching approach indispensable for vocational training and practical training courses. Although modules are materials based on individual training, teachers play an active role during practices. Teachers play an active role in the preparation of the modules, the determination of periods, the planning of activities inside and outside the classroom, the implementation and evaluation of activities. That teachers help students especially during the use of modules increases the success (Taşpınar, 1997).

The aim of this study is to determine teachers' views towards modules used as education-teaching material in vocational- technique education. In accordance with general purpose, answers were sought to the following questions:

1. What are the views of teachers towards the modules used in technical and vocational education?
2. What are the problems teachers encounter on the implementation of the modules used in vocational and technical education?
3. What are the recommendations of teachers for the modules used in technical and vocational education?

2. METHOD

2.1. Model of the study

In this study, case study, one of qualitative research methods, was used. The key feature of the case study was to survey one or a few case in depth. That is, factors of a situation (environment, individuals, events, processes, etc.) are studied by holistic approach and focus on how they affect the related case and how they are affected by related case (Yıldırım and Şimşek, 2006).

2.2. Working Group

The research was carried out with the participation of a total of 12 teachers working at 3 vocational and technical High School in the academic year 2012-2013 in the district of Bursa Province Mustafakemalpaşa, There were 8 male and 4 female participants. The participants were from different fields on a voluntary basis.

Table-1. Distribution of respondents according to schools

Type of School	Participant Code	Number of participants
Technical and Industrial Vocational High School	EML-(1,2,3,4)	4
Technical and Vocational High school of Girls	KML-(1,2,3,4)	4
Trade School	TCL -(1,2,3,4)	4
TOTAL		12

2.3. Development of Data Collection Instrument and Data Collection

Semi-structured interview technique was used in this study as a method of data collection. As semi-structured interview technique allows data collection by open-ended questions rather than closed-ended questions, it shows the quality of a flexible guide during the interview and provides focus on the subject and help take in-depth knowledge about the participants (Rietbergen-McCracken and Narayan-Parker, 1998).

In the preparation of Interview forms, the opinions of teachers were consulted and literature related to the subject was surveyed. The draft interview form reviewed by members of the faculty in the field of educational sciences was finalized in line with comments and suggestions. The interview form consists of 10 open-ended questions. During the interview, participants were asked probing questions as needed. Face-to-face interviews with participants were recorded by audio recording device with the approval of the participants. After the interviews, the recorded data was converted to text.

2.4. Validity and Reliability

The themes in the content analysis made to increase the internal validity of the study were tried to be as broad enough to include the related concepts. All of the findings were directly presented without comment to improve the internal reliability of the data and the other researchers were involved in the process of analysis of data. To enhance the external reliability and external validity of the study, research process and those made in this process were tried to be explained in detail. In this regard, the model of the research, the data collection process, analysis and interpretation of data were described in detail. Also, the raw data obtained and codes are stored for others to review.

2.5. Analysis and interpretation of data

The data obtained were subjected to content analysis. The main objective in content analysis is to achieve the concepts and relationships to explain the collected data. Data are defined through the content analysis; facts that may be stored in data are brought out. The main process in content analysis is to bring together data similar to each other within the framework of specific concepts and themes and interpret them by organizing in a way that readers can understand (Yıldırım and Şimşek, 2008).

In this study, in the process of data analysis, these steps were followed: 1 - Data Coding: interview data were examined and the general framework of coding list was established. 2 - Finding themes: it was decided which codes can provide a combination in order that they could make a convenience in data classification and finding themes. Thus, codes were brought together and meaningful relationships between them were established. 3 - Regulation of codes and themes: The codes and themes were arranged. Data united under the same code or theme were associated with sub-problems the theme. 4 - The identification and interpretation of the findings: Descriptions for themes to each sub-problem theme were made and findings were interpreted with the support of direct quotations.

3. FINDINGS

3.1. Findings related to the views of teachers towards modules used in vocational and technical education

When the overall assessment of the participants on explanations part in the module was examined, it can be seen that they are of the opinion that the explanations are clear, functional, necessary and sufficient.

"... a language that both the student and the teacher can easily understand. In terms of language, I do not see a problem for the usability of the words ... "(TCL-1)

While some of the participants are of the opinion that time for the module is sufficient, while other participants say that time is much more for some modules and insufficient for some.

"... Some of our modules are adequate, but there is much time in some of our modules. The number of modules is not adequate but there is too much time while in others there is less time... "(CML-1)

All of the teachers are of the opinion that the objectives in the part of explanations are suitable, clear, understandable for developmental feature of students and special objectives are consistent with general objectives.

"... Yes, clear and understandable. So they are applicable. Short and descriptive sentences are already used. I think it can be carried out when we have a lecture or make the orientation of the course in accordance with the sentences and explanations... "(EML-2)

It is seen that teachers are of the opinion that recommended environment and hardware are consistent with the objectives and applicable when the views of the participant teachers towards educational environments and equipments in the part of explanations are studied.

"... I think they are prepared in a way that they overlap with each other already. There is not a shortage. But somewhere, for example, we always tell the same, if there is something, if there is impossibility or lack of material, we can't realize any of them from the beginning already... "(EML-3)

Vast majority of participants are of the opinion that the part of introduction is clear, understandable qualified enough to guide students and appropriate for their levels.

"... The part of introduction is necessary in terms of providing the necessary start-up information on the subject as in the part of explanation. In general, language in modules is understandable...a language that students read without having any difficulty or getting bored so I do not see any problem ... "(CML-3)

The teachers in the study group are of the opinion that preliminary research proposed in teaching-learning activities in module are appropriate to the level of students as well as cost and time, and in a consistent with objectives and can be performed.

"... when I look through the explanation here, I consider and observe that our students can easily do and it is prepared in a way that it won't pose any financial burden on our students. There is no problem in understanding. It is easily understood. It is suitable for high school students..."(EML-1)

On the other hand, as an analysis of views towards the content of the teaching-learning activities, the content is coherent with objectives, according to the level of students, clear and understandable and is considered to be scientifically accurate and up to date.

"... It is good as a language. I mean, there are no very complex sentences. I think coherence at level of students is normal. It is fine, so I can not say anything negative ... "(EML-5)

As an analysis of views towards the proposed practices in teaching-learning activities, participants agree with the opinion that they are coherent with objectives, appropriate for student level, and cost-effective, sufficient in terms of time and functional.

"... It is well-chosen. It is really nicely prepared as they are more and more challenging applications such as on-stage level; for example, the applications at the end of the module, and in the subject. It is suitable for student level. Students are not imposed to severe stress as it goes from simple to hard..."(TCL-4)

The vast majority of participants agree with the opinion that the proposed evaluation and assessment tools in module are easily applicable and sufficient in scope.

"... It is easy. Sometimes we encounter questions that contrast with each other. For example, here is a question, answer of which is given as a question in the other. I think that the evaluation should not be this way. I take advantage of all ... "(CML-3)

3.2. Findings related to the problems teachers encounter on the implementation of the modules used in vocational and technical education.

As an analysis of participants' views towards the implementation of the part of explanation in module, it is seen that they agree on the idea that explanations are not used by students, do not guide students, insufficient and hard to follow up.

"... We read the descriptions at first, but I do not think many students consider it much ..." (TCL-1)

"... Students have had the habit to skip the explanation part and directly start from the introduction part..."(EML-3)

"... Students do not look too much here, but it is written in an understandable language and it can guide students and teachers ..." (CML-2)

Some of the participants state that there is insufficient time for module in the implementation of it. In addition, participants express that periods of extra-curricular proposed in module cannot be used and followed up.

"... In every classroom I am in different. Part. . In one part, I am a week ahead. In another, I am one week back. Some modules differ according to the students of the class and according to their ability. In some of the courses, the given period of time can be inadequate for that module..."(TCL-1)

"... We have practical courses, but after dealing with a subject, I do not think we can make it applicable outside. On the other hand, we cannot follow the work outside. ... "(EML-3)

Teachers state the problems concerning the objectives of the implementation process as the lack of the level of students' readiness, time and the learning environment. Moreover, the objectives are far away from work life.

"... Of course, we have a problem with the period of time and the problem of time arises. For example, the button buttonhole camera should be used by everyone. There is a shortfall of equipments in these matters. That is the Low level of the student. General problem of vocational high schools is the lack of interest. That is the decrease in the level and the reluctance of the student ... "(CML-1)

When the views of participants towards educational environments and equipments on the problems of the implementation of module are examined, it is seen that they agree with the opinion that there are insufficiency in terms of equipment and disconnection from work life.

"... We can deal with 80% of the subjects, but we cannot deal with 20% of subjects due to lack of equipment. There are also subjects remaining in a level of information. That is, if you can tell the module through full equipment, you can teach the students and allow them apply it. However, students experience completely different machines and measurements at workplace. For example, you have them weighed 5 g and you teach them in this way..."(CML-2)

The vast majority of teachers emphasize the problems on the introduction part in the process of implementation as not using the part of introduction and not being able to draw interest.

"... We want to start our subject in an anxiety to finish the modules as soon as possible, and do not refer to this section. In addition, even when it is in plaintext, it is not attractive.... "(CML-4)

"... Students do not take into account much more. So any students has not returned saying that he or she read the introduction.... "(EML-2)

It is seen that teachers in the study group differently express the problems involved in the process of the realization of preliminary studies in teaching-learning activities in module. Among these, inability to draw the attention of student, the low realization rate, high cost, lack of environmental opportunities and time, disconnection of work life and difficulty in following come forward.

"... The time is not enough. Environmental facilities are insufficient. We live in the district. It is not a very well-equipped place. So, for example, sometimes we can not find a pen that we look for ... "(CML-4)

"... But as a result of this learning activity, students themselves obviously cannot make the assessment of the application of this work..." (EML-1)

It is seen that teachers' views are diversifying on the problems in the process of implementation of the content of teaching-learning activities. The main problems in this area are scientific error, not being up to date, poor quality in printing, unnecessary detail, not being original, and misspellings, being comorbid and inadequacy visually.

"... In general, except for the period, the part in the modules, are processed disconnected from each other. For example, what have we dealt with in computerized accounting module? We have dealt with current accounts. After this subject, so many subjects have been dealt. . For example; accounting receipts. When passing to another part, as if we had never dealt with the accounting receipts, we start from the very beginning and the subject is told to the student.... "(TCL-4)

"... There is not a very specific content... "(CML-2)

When the findings concerning the problems in the process of the realization of the practices in learning-teaching activities are examined, it is seen that participants' views are diversifying and state that there is lack of environment, equipment and time, superficiality, and the high cost.

"... If there is the impossibility in question, if there is the impossibility of workshop, this is biggest problem in terms of the material. Another can not be a nuisance anyway ... "(EML-3)

"... There are not enough subjects for applications, I mean in the modules. Just a few simple application examples are given. There is no sample in the applications but the titles of the topics. These sources will be made, these processes will be made. Is there anything else? There is nothing else. Which application will be made is not available in the module... "(EML-4)

The vast majority of participants agree with the opinion that there are certain problems such as lack of environment in evaluation and assessment practices, and inability to make a self-assessment and performance evaluation.

"... but some of the modules do not cover all learning activities in assessment and evaluation questions..... Let alone the evaluation of learning ... It is unfortunately we do not have a student profile ... (EML-1)

3.3. The recommendations of teachers concerning modules used at Vocational and technical education

When the recommendations of participants concerning the part of explanations are generally examined, it is seen that they agree on the opinion that the explanations should be clearly written by experts.

"... I want it to be prepared by the instructors at the university. So there can be a little more informative and consolidating explanations. One explanation may be the result of research ... "(EML-4)

On the duration of the module, Participants recommend that class hours should be increased, and the duration of the module should be arranged in accordance with the school-industry cooperation.

"... I think the solution here is to survey and increase the class hours so that they can get to know their profession environment. Of course, it is necessary that school and the profession should be compatible with the environment ..." (EML-5)

The participating teachers are of the opinion that the views of teachers towards the explanations should be taken and teachers should inform the students about the purposes of the modules.

"... Teachers should give the students the habit of reading. . Also, by taking the views of teachers, the part of explanation should be conformed to the level of students... "(TCL-4)

When the participants' recommendations towards educational environment and equipments are examined, it is seen that they agree with the opinion that the school environments should be developed in terms of equipment, the visual materials should be used, and the environment should be in compatible with the business life.

"... That the teacher use materials more (TV, VCD, computer, etc.) allow the students have an optimistic atmosphere to the profession, and they become more interested in ..." (TCL-1)

"... Graduates from different universities must come together. Only teachers would not be enough. I think academics should be a participant..."(CML-4)

On the recommendations of the part of introduction, the vast majority of teachers are of the opinion that this part should be supported by pictures and visuals, be prepared by experts, be made in the future and should include significant elements.

"... People who have been trained in this field may perform this work. Perhaps, it would be much better. What can arouse students' attention? So, especially coloured images provide much benefit, I mean, there is much difference between a Coloured book and colourless black and white book ..." (EML-3)

On the preliminary studies in the teaching-learning activities, teachers state that they should include more sample applications and be adapted to the business life.

"... I believe that in preparing the module, it would be better to have a sample of them on the page (EML-4)

"... especially on regional basis, there are a lot of activities to be carried out, of course, there is a union in education. This is not something easy to ..." (TCL-3)

When the recommendations regarding the content of the teaching-learning activities is analyzed, it is seen that certain recommendations are expressed as follows: it should be updated, be adapted scientifically, have an increased print quality, be purified from detail information, written by experienced teachers and experts, be supported by remarkable elements.

"... When the module was first introduced, it was very feasible. However, our profession is very dynamic. Therefore, the content should be revised and renewed. We encounter very deep-rooted and very basic errors. So the content of the modules should scientifically be examined again ..." (EML-1)

On the applications concerning teaching-learning activities, participants agree with the opinion that there should be implementation activities taking the expectations of work life into account, implementation activities should be enriched and be detailed, and they should be prepared by experienced teachers and experts.

"... It is essential that applications are needed to be chosen in accordance with today's technology and innovations. Those who prepared this module should visit the enterprises to see the current practices. And they should put these applications into the modules by obtaining information about them ..." (EML-4)

On the evaluation and assessment tools, the vast majority of participants recommend that teachers should establish question banks, suitable environment should be provided for evaluation process, and the examples for different types of questions should be included in the module.

"... Teachers can make up evaluation - assessment questions through the modules and introduce sample test. These tests are submitted to the centre. The commissions to be created in the centre can prepare the assessment tests for the following year and question banks can be made available to all teachers ..." (EML-1)

4. CONCLUSIONS AND RECOMMENDATIONS

In this study carried out to determine the views of teachers towards modules used as educational material in vocational and technical education, the following conclusions were reached:

On the part of explanation of modules used in vocational and technique education, teachers state that modules are clear, functional, necessary and sufficient. On the other hand, they also state the problem that the part of explanation is not used by student, do not guide students and is too hard to follow. So they recommend that the part of explanations should be clearly written by experts to solve out these problems. While teachers disagree on the evaluation of the time allocated for the modules, while they agree on the problems that there is insufficient time, extra-curricular periods cannot be used, and they are hard to follow. In order to solve the problems mentioned above, they suggest that, modules in the course bourses should be increased and period on modules should be regulated in cooperation with school-industry. While goal statements in the part of explanations are appropriate for developmental characteristics of students, clear, understandable and consistent with the general objectives, there are problems related to lack of students' readiness levels and environment and disconnection from business life. In order to solve these problems, teachers propose that their views are to be taken in writing module and students are to be informed about aims of the module. The conclusion, in a study conducted by Seçilmiş and Ünlüönen (2011), in which teachers who participated in the survey agree with the opinion that overall aims and objectives were clearly stated and clear and understandable, show consistency with this study. As the environment and the equipments in the module are evaluated by teachers as consistent with the objectives and applicable, lack of schools in terms of equipment and disconnection from business life are designated as the main problems at this point. About the solution, it is proposed that school environments in terms of equipments be developed, visual materials be used, and the environment should be compatible with business life. Also, in a study conducted by Gök (2011), similar conclusions regarding equipment deficiency at school environments were achieved, teachers who participated in the survey agreed with the opinion that the existing equipment of schools are not sufficient for the implementation of modules. Similar results were also introduced in a study conducted by Adigüzel and Berk (2009), participants in this study emphasized the inadequacy of the existing equipments in vocational and technical education institutions and stated the need of additional equipments for implementation of modular education programs effectively.

The part of introduction of modules was interpreted by teachers as clear, understandable and in a way to guide students in accordance with the level of the students. As the issues relating to this section are disuse and inability to attract interest, recommendations should be prepared by experts, used in the future and include remarkable elements.

As Preliminary research proposed in learning activities on the module is evaluated as suitable for the student level, appropriate in terms of cost and time, consistent with objectives and achievable; inability to draw attention, the low realization rate, high cost, lack of time and environmental opportunities, disconnection from business life, work life, difficulty in follow-up are stated as problems. In order to solve these problems, teachers list their recommendations as follows: more sample applications should include and be adapted to work life. Teachers stated that the content of learning activities were compatible with the objectives, suitable for the student level, clear and understandable, scientifically accurate and up to date. On the other hand, certain problems are indicated such as the presence of the scientific error, not being up to date, poor quality in printing, unnecessary detail, not being original, spelling errors, being comorbid and insufficiency visually. Recommendations to overcome these problems are listed as follows: Updating of content, optimizing scientifically, improving the quality of printing, purification from detailed knowledge, written by experienced teachers and experts, supporting by attractive elements. These results achieved significantly show consistency with the results achieved in a study

conducted by Seçilmiş and Ünlüönen (2011). About the applications proposed in learning activities, teachers are of the opinion that they are compatible with the objectives, suitable in terms of the student level, and cost-effective, adequate in terms of time, and functional. However, they state the problems such as lack of environment, equipment and time and superficiality and high cost. Recommendations on these issues are expressed in this way: the implementation of activities should be enriched in a way to meet the expectations of business life and be detailed, prepared by experienced teachers and experts. In a study conducted by Dursun (2008), it was found out that the participating teachers are neutral about the providing opportunity to practice of SVET project in enterprises to students and the increase school-industry relationships. Also, in a study conducted by Gök (2011), conclusions that support these findings were achieved, and it was found that participants disagreed on the opinion that experts took part in the writing of the modules. Similar results were also achieved in a study conducted by Ünlüönen and Seçilmiş (2011), and it was determined that the most significant difficulty is that people who wrote the modules do not have knowledge and experience in this regard.

Assessment and evaluation tools proposed in Modules are considered by teachers as easily applicable, and adequate in terms of content. On the other hand, lack of environment, self-assessment and failure of performance evaluation are stated as problems. Teachers list their recommendations regarding assessment and evaluation tools; question banks should be established, a suitable environment should be provided to evaluation process, examples for different types of questions should be included in the module. Similar conclusions about the lack of assessment and evaluation tools were achieved in a study conducted by Seçilmiş and Ünlüönen (2011).

As an analysis of research in related literature on the assessment of the modules, it is seen that participants are of negative views on modules in general (Ergin, 2008; İşoğlu, 2010). It can be said that there is a significant consistency between the results obtained in studies in related literature and the results obtained in this study.

When the findings of the study are analyzed in general, although modules, prepared to be used as teaching material at vocational and technical education institutions, are evaluated by teachers as positive with certain aspects as draft, it was discovered that there were significant problems in the implementation process. It was determined that the two main sources of these problems were that modules are disconnected from business life, and not written by experts. In addition, based on the findings of this study, it can be said that the views towards recommendations for modules and the problems encountered in the process of implementation of modules, on the evaluation of modules do not differ significantly in terms of teachers institution, and there is a similarity between the views of teachers who work in different three institutions.

Developed recommendations on the basis of the results achieved are listed below;

1. Modules are to be written by expert individuals,
3. Modules are to be improved in a qualified way to prepare students for their lives of future business,
4. Modules are to be prepared to support students' lifelong learning,
5. The content of the modules are to be clear, understandable and scientifically updated,
6. The expectations of the industry are to be taken into account in the preparation of modules,
7. School environments are to be supported by applicable equipments effectively,
8. Modules are to be supported with visual elements,
9. Revisions are to be made by taking feedbacks about the proposed time and subjects for modules.

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Teacher-coaches' perspective on the validity and acceptability of commercial laboratory testing and analysis of high school science investigatory projects

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Abstract

This paper attempts to determine the teacher-coaches' perspective concerning the validity and acceptability of commercial laboratory testing among high school students in conducting their investigatory projects (IP). Considering the conduct of IP as an inquiry-based learning of the scientific method, *validity* in this context refers to the alignment of the practice to the goals and aims of having the students do an IP, whereas *acceptability* refers to the personal judgment of the teacher whether the said practice is appropriate or not. The study initiates with a review and discussion of the nature of IP as practiced in the Philippine setting vis-à-vis with relevant literature on inquiry-based teaching and learning. The empirical aspect of the study is the participation of 47 practicing high school science teachers who are, or have had an experience in teaching and coaching the conduct of an IP. Data collection involves the use of survey as well as grouped and individual interviews. Results indicate that while majority of the respondents consider the practice as invalid, majority of the same pool of respondents also consider the practice as acceptable. Lack of laboratory instruments and materials was pointed out as the inherent determining factor in the consideration of the validity and the acceptability of the practice. The implications to assessment specifically on judging the merits of the students' IP output are also discussed.

Keywords: Investigatory Project; Inquiry-Based; Scientific Method; Experiment; Science Investigation

1. Introduction

1.1. The Philippine High Schools Science Curriculum

The Philippines is currently changing the landscape of its main educational highway as evidenced by the current transition from K+10 to K+12. The current secondary education science curriculum in the Philippines as prescribed by the Department of Education (DepEd) is disciplined-based. First year high school students take general science, which is a combination of astronomy, earth science, biology, chemistry, and physics. Second, third and fourth year high school students take biology, chemistry and physics respectively. Each science subject is a combination of both lecture and laboratory encounters that are usually integrative in nature- that is, the same teacher is handling both laboratory and lecture classes. In order to increase interest in science of high school students, almost all secondary schools require their students to conduct an investigatory project. Investigatory projects or IP's are science investigation projects where students undergo the research process utilizing the scientific method. The design is generally experimental and students are free to choose the specific discipline with which they are to conduct their research. The length of conducting an IP generally varies in different schools. Some schools follow a spiral format where students submit their IP's by parts (4 years), other schools

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opt to require the students to conduct the IP on the last year of high school (4th year), while still others require one IP per year level. The conduct of an investigatory project is not a requirement of the Department of Education. However, DepEd conducts a yearly event in the form of a science and technology fair showcasing the best IP's of all secondary schools in the country. Such event is actually a contest to select the best investigatory project from the district level (basic aggregate of schools), the regional level (several districts), and in the national level (DepEd Memorandum 73, 2009).

1.2. Investigatory project as an inquiry-based assessment

Inquiry-based teaching and learning is one of the approaches in science education. The National Research Council (2000) proposed five standards that capture the characteristic of an inquiry-based approach to teaching and learning with respect to the learner: (a) engaged by scientifically oriented questions, (b) give priority to evidence, which allows them to develop and evaluate explanations that address scientifically oriented questions (c) formulate explanations from evidence to address scientifically oriented questions, (d) evaluate their explanations in light of alternate explanations, particularly those reflecting scientific understanding, and (e) communicate and justify their proposed explanations. These standards when used to examine the nature of the conduct of an investigatory project among high school students generally condone the nature of IP as an inquiry-based activity. Further, the fact that IP's are one of the considerations for the assignment of grade, and are considered one of the major requirements in science make IP's as a form of assessment. In effect, an investigatory project in this context would be an inquiry-based assessment. In line with this reasoning, the dynamics that govern the conduct of the IP should be interpreted in light of the assumptions and underlying principles of the inquiry-based teaching and learning.

Using inquiry-based learning as the framework for the conduct of an IP, the objectives of such an activity can be coincided with that of inquiry-based teaching as offered by Schwab (1962) where "instruction by inquiry promotes student understanding of the nature of science". By extension, the conduct of an IP has the primary goal of allowing the students to undergo the process of conducting an investigation using the scientific method thereby gaining a considerable understanding of the nature of obtaining solutions to problems or answers to questions in a systematic and scientific way.

Simply having this broad idea concerning the objectives of the conduct of an investigatory project poses a dilemma specifically concerning the skills that the students ought to develop during the course of doing the IP, in this case, the testing and analysis of their data. The non-existence of a non-standardized target or competencies for the students who are required to conduct investigatory projects has repercussion on the method and the extent to which the conduct of an IP is taught and evaluated. Consequently, such repercussions will affect the grade that the student gets. It is in this light that a national document explicitly specifying the goals and limitations for the conduct of IP's among high school students is necessary. As of the moment, the guideline that is being followed is in the form of excerpts taken from the International Science and Engineering Fair International Rules and Guidelines (2013), which do not exactly suit the context with which the IP's are conducted in the Philippines.

2. Methodology

The study was conducted among practicing high school science teachers who are, or have had an experience teaching IP as the respondents. A total of 47 science teachers served as the respondents of the study. Of the 47 respondents, 9 were male and 38 were female; 37 have a bachelor's degree, 7 have acquired graduate units while 3 are graduate degrees holders (MA). Out of the 37 with a bachelor's degree, 28 had a bachelor's degree in secondary education (BSEd) while the other 9 have a bachelor's degree in the pure sciences. Out of the 9 non-

BSEd degree holders, 7 were with a bachelor's degree in the sciences: 1 in physics, 2 in chemistry and 4 in Biology; and the other 2 in chemical engineering. The teaching experience of the respondents ranged from 1 to 18 years.

The method used in gathering relevant data was mainly data mining and survey using a 2-item, researcher-made differential semantic scales concerning the validity and acceptability of the practice. Prior to answering the survey, the respondents were personally briefed of the operational definition of the terms *validity* and *acceptability* as used in the context of the study. The respondents were also interviewed personally, through email exchanges, and electronic chats. The responses during the interview were thematically analyzed and the prevalent themes of their responses were presented and discussed.

3. Results and Discussion

3.1 Validity and Acceptability of Practice

The following tables (1 and 2) present the result of the teacher-coaches' response using the 5-level differential semantic scaled questions with 1 as very invalid or very unacceptable and 5 as very valid or very acceptable:

Table 1. Teacher-coaches' response on the validity of practice

Scale	Very Invalid (1)	Invalid (2)	Undecided (3)	Valid (4)	Very Valid (5)
Number of Respondents	24	9	6	5	3
Percent Respondents	51%	19%	13%	11%	6%

Table 2. Teacher-coaches' response on the acceptability of practice

Scale	Very Unacceptable (1)	Unacceptable (2)	Undecided (3)	Acceptable (4)	Very Acceptable (5)
Number of Respondents	24	9	6	5	3
Percent Respondents	51%	19%	13%	11%	6%

As can be observed, majority of the teacher respondents consider the practice as invalid with a combined percentage of 70%. Of this 70%, 51% indicated the practice to be very invalid. This implies that with the teacher respondents' perspective, the conduct of an investigatory project necessitates the students to undergo each and every process associated with doing an IP, from problem conceptualization until the final presentation of the results. Moreover, this choice also provides a picture, albeit not very clear, on the perceived goals of conducting an IP despite the lack of a national framework. Upon probing through interviews, most of the respondents who consider the practice as invalid believe that testing and analysis is an integral part of conducting an investigatory project by the students themselves, and that the inability of the student to conduct such practices on their own is equivalent to non-acquisition of the skill to do so. On the other end, some of the respondents consider the practice as valid. There were two dominant justifications as to why they consider the practice as valid: (a) the utilization of commercial laboratories is part of the students' prerogative and 'method' in acquiring the desired results, and (b) the value of 'practicality' considering the inability of the school to provide the necessary equipment for the conduct of such testing and analysis.

With regard to the acceptability of practice, a shift can be observed in the teacher respondents' choice. While majority considers the practice as invalid, the number of respondents who consider the practice as very unacceptable dramatically decreased. Further, the number of respondents who were relatively ambivalent also increased as indicated by the number of respondents who answered 3, from 13% on the issue of validity to 28% when it comes to acceptability. Considering the figures in the table, it was observed that a number of respondents who indicated the practice as very invalid and invalid shifted to ambivalence while those who were ambivalent as regards to validity shifted to acceptable and very acceptable. As expected, those respondents who considered the practice as very unacceptable came from the same set of respondents who considered the practice as very invalid. During the interview, the shift in the teacher respondents' response was largely due to their personal claims on the objective of the activity, which is the conduct of an investigative research following the scientific method, and the inherent financial and instrumental demand of the practice.

3.2 Implications to assessment

Since the investigatory project is used as an inquiry-based assessment, it follows that the conduct of the IP is supposed to follow sound practices of both formative and summative aspects of assessments concerning inquiry-based teaching and learning. Further, since assessment is largely based on the objective of the activity, it is likewise important that the teacher be guided as to what scientific skills are being targeted with respect to the different steps involved in conducting an IP. The lack of a national framework that would have enabled the teacher-coaches to have a uniform understanding of the objectives of conducting an investigatory project is seen to be one of the major factors why a number of ambiguities such as these exist. To cite an example, consider the exchange in the following interview segment between the researcher and one of the teacher-respondents:

Interviewer: Are your students free to choose the topic or problem that they will investigate?

Teacher: Yes. They are free to conceptualize the problem although I have to guide them since they tend to formulate out-of-this-world problems most of the time.

Interviewer: What do you mean out-of-this-world problems?

Teacher: Well... silly problems like the effect of drinking 8 glasses of milk in a day and some other problems that are not really answerable in a way.

In this exchange, it is apparent that the teacher has an idea as to what is feasible to be considered as a science investigatory project with respect to the students' capacity to do a scientific investigation, albeit in a very personal way. If a framework exists defining the limits or extent of research problems that the students can use in the conduct of their IP, such framework will essentially have to contain conditions stipulating whether to only allow problems that are doable within the boundary of the school's environment and resources, or beyond. Having this framework will give a resolution on the validity and the subsequent acceptability of the practice being focused in this study.

Another implication to assessment is the formative aspect of the conduct of the IP. While the teacher might be aware of the summative aspect of the IP as a graded output, the formative assessment aspect has to be stressed to be of equal importance. Bell and Cowie (2001) categorized formative assessment into two types: formal and informal. Formal formative assessments are those assessments that are planned and whose main purpose is to obtain learning information from the whole class whereas informal formative assessments are unplanned and are used in obtaining information about student learning whenever possible. Example of informal formative assessment is the dynamics of simple classroom interaction or 'hallway conversation' between teacher-coach and the student. As of this writing, there was no literature available concerning the role of formative assessment in the conduct of IP especially in the Philippine context. The role of formative assessment has been proven to be essential especially in improving student performance. Moreover, formative assessment as used in inquiry-based teaching and learning usually focus on the epistemic rather than on the conceptual feature of the scientific inquiry (Ruiz-Primo and Furtak, 2006). This means that the integration of formative assessment will actually reinforce student learning of the conduct of an IP as a 'process' rather than as an 'output'. This reinforcement is consistent with the literature of Bodzin and Beerer (2003) concerning the claim of inquiry-based teaching and learning advocates that the practice does "provide learners with the opportunity to learn scientific practices by actually engaging in them."

Finally, the results of this study indicate the need to come up with a sound rubric that is anchored in an encompassing framework that depicts the interplay of the concepts and processes in conducting an IP. As of the moment, the lack of a defining framework concerning the use of IP as a teaching-learning process and as an assessment scheme significantly affects the way IP's are assessed. The consequent evaluation of the IP output is therefore relatively invalid since the resulting rating will be subject to the teacher-coaches personal interpretations as well as to inter-rater threats to reliability.

4. Conclusion

The conduct of investigatory projects in the Philippines is more of an inquiry-based assessment scheme. It was noted that the practice of students having their IP data tested and/or analyzed through commercial laboratories is deemed by majority of the teacher-coaches respondents as invalid but acceptable. Based on individual and group interviews, the most prevalent factor that determines the acceptability of the practice is the lack of materials and laboratory instruments available for student use. Also, the lack of a national framework specifying the scientific skills and target competencies of students in the conduct of the IP is also a factor that contributes to the inconsistencies in both practice and evaluation of the conduct of IP's. Moreover, the conduct of IP as an inquiry-based assessment scheme in Philippine classrooms necessitates the utilization of both formative and summative aspects of assessments. Finally, the inclusion of the identified gaps in formulating a rubric to better assess and evaluate the quality of IP outputs is likewise proposed.

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4th International Conference on New Horizons in Education

Teacher candidates' use of facebook for educational purposes

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Abstract

In this study, the views of teacher candidates over the use of Facebook for their educational purposes (communication, cooperation, sharing sources and materials) have been analyzed in terms of gender and class variables. The research has been conducted with teacher candidates of Sakarya University College of Education. The sample of the research consists of a total of 1494 people 877 of which are females and 617 of which are males. A set of data has been formed depending on the answers of the teacher candidates to the Educational Use of Facebook scale. The data collected through the polls has been analyzed with the help of frequency and percentage, t-test, ANOVA and the techniques. With the ANOVA analysis, considerable differences have been found in the answers of the teacher candidates according to the class variable.

Keywords: education, facebook, communication,

1. INTRODUCTION

Nowadays, the interaction on the social network sites is primarily based on the friendship, relationship, interests and activities. However, this is not the only function of the social network sites. These networks are not only comprised of family and friends but also of teachers, school staff, neighbors, and the connections among the society. Social networks provide the users with such facilities as creating information, and sharing and making contacts (Kwon and Wen, 2010).

According to Jones and others (2010), social network has nothing to do with the technology or computer systems. It is a purpose which gives the teachers and learners the opportunity to share their experiences and the things that they learn. As well as enabling the workers in an institution to be in contact with their colleagues social network sites also help them make new contacts and cooperate with their colleagues in similar institutions (Ploderer, Howard and Thomas, 2010).

As the social network users are mainly the young and students, and provide them with rich contents, social networks are considered to be used for academic purposes. Users of all ages using the Facebook and its playing an important role in their lives has generated great interest among some academicians (Selwyn, 2007). A number of researchers have wondered the the effect of this virtual world on the users. These researchers have agreed upon the idea that social networks really have considerable effects and social networks should be used in the area of education (Joly, 2007). Grant (2008) stated that the use of social networks in the learning environment would foster a better communication between the teachers and the learners and thanks to social networks teachers could get to know their learners closely.

Social networks develop communication skills, participation and social connectivity and moreover, it fosters learning with the peer support and cooperation. Social networks are among the most popular applications of the

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internet—which today rapidly advances on the way to being one of the most important means of communication (Cam and Isbulan, 2012).

Academicians also make use of the social network sites. Social network sites are used more easily than other instructional systems due to their flexible and developable content. Students and researchers form groups appropriate for the content and for the easy use of social networks and thus sharing what they have with each other. This provides both the teacher and the learner with ease in terms of communication, interaction and feedback (Gülbahar, Kalelioğlu and Madran, 2010)

Facebook is the most popularly used and preferred site off all the social networks. The most significant feature of Facebook distinguishing it from the others is its applications. There exists applications on Facebook that are created by the system itself and the users. This feature of Facebook causes the users to spend more time on the site (Kobak and Biçer, 2008). As Facebook is mostly used by the young and the students and also to reduce the effect of waste of time on Facebook, a number of researchers tend to conduct their sessions on Facebook. According to Munoz and Towner (2009) Facebook can be integrated into the lessons in various ways.

There are many researches on the use of social networks in the process of learning and teaching. When looked at the researches on the use of social networks for academic purposes, it is understood that most of these researches are based on the popular social sharing site Facebook.

With the research carried on 909 students, Selwyn (2007) searched their courses and their ideas on their education by searching usage purposes of Facebook, its effect on undergraduate education and the students' walls on Facebook profiles. Throughout the research, he asserted that Facebook helps the students to come over the role complexities that they encounter especially in their academic works against the instructors and academic chats.

With their research, Munoz and Towner (2009) stated that pictures, videos, messages, homework and applications appropriate for the students' topics handled at the courses could be used for educational purposes on Facebook. Furthermore, they asserted that students could share their presentations, homework, and other products by integrating the web-based courses, videos, and Google Documents into Facebook.

As a result of another research carried out by Martin (2009), students used the social networks at most for socialization and entertainment and at least for occupational purposes, and also Facebook was the most popularly used social network and LinkedIN was the least popular social network. Keleş and Demirel (2011) looked into this application process in terms of the interaction between each other, instructors and the content of the course by working on a sample for the academic use of Facebook with the undergraduate students. Another study, Mazman and Usluel (2009) developed a model to suggest the use of social networks for educational purposes.

2. RESEARCH METHOD

The purpose of this study is to determine Educational Use of Facebook of teacher candidates who are enrolled in Sakarya University, College of Education. In a descriptive method, the aim is to describe systematically the facts and characteristics of a given population or area of interest, factually and accurately. According to Karasar (1999), descriptive method is the research method that explains existing circumstances with fidelity, i.e. it seeks for the answer to the questions of “What is was?” and “What it is?”

2.1. Participants

The participants of the research consists of a total of 1494 people 877 of which are females, 677 of which are males and 497 of them are freshman, 305 of them are sophomore, 336 of them are junior, 356 of them are senior students. Distributions of teacher candidates who took part in the research according to their genders were as follows: %58.7 of females and %41.3 of males. The demographic characteristics of the participants are given Table 1.

Table 1. Data About the Sampling

Variables	N	%
Gender	877	58,7
Female	877	58,7
Male	617	41,3
Classes		
Freshman	497	33,3
Sophomore	305	20,4
Junior	336	22,5
Senior	356	23,8
Total	1494	100

2.2. Data Classification and Analysis

In the research, to identify teacher candidates' demographic characteristics, frequencies and percentages were calculated. T- test and ANOVA were used to examine differences among groups in terms of independent variables. For statistical analysis, SPSS 19 Statistical Data Analysis Program was used.

2.3. Instrument

Facebook Academic Use Scale which was used within the research was developed by Mazman(2009) in the scope of Master Degree Thesis. According to Mazman (2009) Academic use of Facebook was handled under three factors as “communication”, ”cooperation” and “sources and material sharing”. A scale consisting of 11 items was developed to identify the usage purpose of Facebook within these three factors. The items in the scale were 10 points likert type and the responses were prepared like that:1=“Completely disagree”, and 10=“Completely agree”. To identify the validity of the scale developed within the research, expert opinion method and to identify the reliability,item-total correlations and Cronbach-Alpha reliability coefficient methods were used. For the validity of the scale, each one of expert in his own field, 7 experts were interviewed, and the

scales were formed for eventual use according to the feedback received on the appropriacy of the items to meet the purposes of the scale.

According to the Educational Use of Facebook Scale reliability analysis results, internal consistency reliability of the 11 items measured via Cronbach Alpha was .92. The internal consistency coefficients of the scale with three subfactors were as follows; communication (.85), cooperation (.88) and sources and material sharing (.86).

3. FINDINGS

This study examines Educational Use of Facebook of teacher candidates who study in college of education. t-Test and ANOVA were used to examine differences among groups in terms of independent variables.

3.1. Gender Differences

According to Educational Use of Facebook scale with three factors, the t-test was applied to the basis of the factors. In this part, it is aimed to investigate that the difference between educational use of Facebook according to gender. The gender differences are given Table 2.

Table 2. Gender Differences on Factors Basis

Factors	Gender	N	\bar{x}	S	sd	T	P
Communication	Female	877	40,06	12,70	1492	,302	,762
	Male	617	39,87	11,57			
Cooperation	Female	877	20,07	7,12	1492	1,403	,161
	Male	617	20,20	6,34			
Sources and Material Sharing	Female	12,94	5,21	7,12	1492	1,492	,301
	Male	13,21	4,53	6,34			

As a result of the t-Test applied, there is not a significant difference between males and females related to the answers given to the Educational Use of Facebook scale.

3.2. Class Differences

As a result of the ANOVA that was applied to see whether there is a significant difference among between teacher candidates' classes related to the answers given to the Educational Use of Facebook Scale. In this part, class differences are analyzed according to factors.

Table 3. ANOVA for Differences between Classes on Communication

Factor	Class	N	\bar{X}	SD	Source Variance of	Sum Squares of	Df	F	p
Communication	Freshman	497	39,40	12,06	Between Groups	4512,76	3	11,00	,000
	Sophomore	305	37,23	13,67					
	Junior	336	42,19	10,01	Within Groups	305477,93	1490		
	Senior	356	41,06	12,64					

As shown in Table 3, significant differences were found between type of classes in their Facebook usage for educational communicational purposes ($F_{(3, 1490)} = 11.00$; $p < .05$). In order to find out among which group this difference results from, Bonferroni analysis in ANOVA was applied. According to ANOVA results firstly, juniors ($\bar{x} = 42,19$) are significantly different from freshmen ($\bar{x} = 39,40$) and sophomores ($\bar{x} = 37,23$). Secondly, seniors ($\bar{x} = 41,06$) are significantly different from sophomores ($\bar{x} = 37,23$). It was understood that the teacher candidates who are juniors more significantly use Facebook for educational communicational purposes than freshman and sophomores. Besides, seniors are more significantly use Facebook for educational communicational purposes than sophomores.

Table 4. ANOVA for Differences between Classes on Cooperation

Factor	Class	N	\bar{X}	SD	Source Variance of	Sum Squares of	Df	F	p
Cooperation	Freshman	497	20,18	6,92	Between Groups	1530,82	3	11,21	,000
	Sophomore	305	18,92	7,59					
	Junior	336	21,86	5,49	Within Groups	67822,67	1490		
	Senior	356	21,00	6,79					

As shown in Table 4, significant differences were found between type of classes in their Facebook usage for educational cooperational purposes ($F_{(3, 1490)} = 11.21$; $p < .05$). In order to find out among which group this difference results from, Bonferroni analysis in ANOVA was applied. According to ANOVA results firstly, juniors ($\bar{x} = 21,86$) are significantly different from freshmen ($\bar{x} = 20,18$) and sophomores ($\bar{x} = 18,92$). Secondly, seniors ($\bar{x} = 21,00$) are significantly different from sophomores ($\bar{x} = 18,92$). It was understood that the teacher candidates who are juniors more significantly use Facebook for educational cooperational purposes than freshman and sophomores. Besides, seniors are more significantly use Facebook for educational cooperational purposes than sophomores.

Table 5. ANOVA for Differences between Classes on Sources and Material Sharing

Factor	Class	N	\bar{x}	SD	Source of Variance	Sum of Squares	Df	F	p
Sources and Material Sharing	Freshman	497	12,46	4,96	Between Groups	1234,42	3	17,38	,000
	Sophomore	305	12,06	5,36					
	Junior	336	14,53	3,90	Within Groups	35266,85	1490		
	Senior	356	13,33	5,08					

As shown in Table 5, significant differences were found between type of classes in their Facebook usage for educational sources and material sharing purposes ($F_{(3, 1490)} = 17.38$; $p < .05$). In order to find out among which group this difference results from, Bonferroni analysis in ANOVA was applied. According to ANOVA results firstly, juniors ($\bar{x} = 14,53$) are significantly different from freshmen ($\bar{x} = 12,46$), sophomores ($\bar{x} = 12,06$) and seniors ($\bar{x} = 13,33$). Secondly, seniors ($\bar{x} = 13,33$) are significantly different from sophomores ($\bar{x} = 12,06$). It was understood that the teacher candidates who are juniors more significantly use Facebook for educational sources and material sharing purposes than freshmen, sophomores and seniors. Besides, seniors are more significantly use Facebook for educational sources and material sharing purposes than sophomores.

4. CONCLUSION

The fact that social networks provide the users with rich content, and the users of social networks are mainly the young and the students revealed that social networks could be used for educational purposes. Facebook is the most widely used one among other social networks. The most significant feature of Facebook most widely used and preferred social network and distinguishing it from the others is its applications. There are applications created by the users and the system on Facebook. This feature of Facebook causes the users to spend more time on the site. The purpose of this study is to identify how Facebook could be used educationally other than its known uses.

According to factors, it was found that there are significantly difference between classes. Juniors are more significantly use Facebook for educational communicational, educational cooperational and educational sources and material sharing purposes than freshmen, sophomores and seniors. However, seniors are more significantly use Facebook for educational communicational, educational cooperational and educational sources and material sharing purposes than sophomores.

In this study, juniors teacher candidates are most significantly use Facebook as educational than freshmen, sophomores and seniors that they use Facebook for fosters communication among to peers, fosters communication between teachers and students, conductional classroom discussions, transmission of course materials and sources, announcements about school, class and courses, forming academic groups considering the common needs, sharing information on the courses or other educational studies, carrying out group works, access to rich sources and materials for learning, providing rich multimedia (video, animation, sound...) during learning.

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Teaching and sexual prejudices. New training needs.

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Abstract

This study focused on the future trainers' attitude in respect of gender, sex and sexual orientation. Contrary to previous research studies, which associate to a greater knowledge a better attitude, our results shown that prejudices are still present even for graduate students. Therefore, it urges a reflection on a new teaching paradigm able to provide a plural gender identity vision. Training processes must be more than a mere intellectual education: a reflection on professional future.

Keywords: teaching, learning, sexual prejudice, sexual orientation, university

According to public opinion, the evolution of the medical view on sexual orientation has not proven useful in the review of opinions on homosexuality. Homosexuals, victims of sexual prejudice, are in fact forced to fight against false beliefs, mistrusts and consequently for the vindication of their rights (example: Stonewall Riots (NY), June 1969).

The distorted and stereotypical picture that emerges from shared representations, in spite of the progress of the research, encourages us in fact to anchor the homosexual to the figure of a sick man: in other words to that of a different man because it barely connects with male-female and man-woman dichotomies.

1. Sexual Prejudice

Prejudice, usually associated with a negative connotation, represents a type of ongoing attitude which is able to resist change due to a lack of sensitivity towards a reasonable argument, despite evidence of the subject's irrationality. One characteristic, which can be attributed not only to the origin of prejudice, seen in the automatic elaboration of information that escapes individual control, but also in affective and cognitive aspects of their attitudes:

1. Cognitive component: information and beliefs towards a subject

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2. Affective component: emotional reaction towards the subject
3. Behavioural component: approaching or distancing actions towards/away from the subject.

Specifically for this research, attention has been focused on sexual prejudice towards sexual orientation, in general on the LGBT Community (Lesbian, Gay, Bisexual and Transgender) and in particular on Gays and Lesbians. It is based on the attitudes which create intergroup tension as they are expressed through appreciation or judgement of a social group (in-group vs out-group), whose members are perceived as similar in virtues, in belonging to a specific group, and worthy of contempt or hostility (Herek, 2000). A different response, in other words, than what is manifested by heterosexuals who have the possibility to interact with friends or family belonging to the LGBT Community; in these cases, in fact, one feels inclined to focus primarily on the personality traits of single individuals instead of the exaltation of the similarities of homosexual subjects (Tajfel, 1959). The minority group, in the absence of interaction, is therefore perceived and perceives itself as inferior, a subordinate segment to the broad social framework of belonging, with poorly considered characteristics displayed by the surrounding environment (Altman, 1982). It is a disadvantaged situation for its protagonists, not only in psychological terms but also social terms, as it implies discrimination and aggressive behaviour (Meyer, 2003).

The use of the term sexual prejudice is, in Herek's opinion (2000), favourable to that of Homophobia, an expression that has crystallised social opinion towards sexual orientation since the end of the sixties; in other words, when it was coined by heterosexual psychologist, Weinberg (1972).

The rigidity of the concept of homophobia is, in the Author's opinion, identifiable in its own content. Although that does not help us to understand it in its entirety, the aversion towards Gays and Lesbians, as it seems to be associated with anxiety and an irrational aversion towards homosexuality, is likened to a similar fear to that of infection and to the terror of being in a closed space with homosexual people.

The difference between the terms sexual prejudice and homophobia is therefore clear: the first is descriptive and makes reference to extensive, traditional research of social psychology related to attitudes, and highlights the dynamics which animate antigay behaviour, whilst homophobia does not define the origins, the dynamics and the motivation of antigay attitudes (Herek, 2000). The appeal of the concept of homophobia, in fact, can be useful when highlighting poor tolerance in general and repulsion against homosexuality, of homosexual people and the actions connected with them. Poor acceptance is shown in physical violence, in murder or in the instigation of suicide (gay bashing). Previous research has demonstrated, in fact, that the increased number of suicide attempts, especially in youngsters, represents a positively correlated link to sexual discrimination (Haas et al., 2010).

Studies dedicated to such a theme have been able to identify possible motivations behind such attitudes when assuming controllability of the cause of homosexuality (etiology), or if it is less connected to the development and learning or more to lifestyle and individual choice. It has been demonstrated, in fact, that members of the majority group only express their positive judgement during assignments, attributing biological or genetical sources that, due to their nature, are uncontrollable (Haslam, & Levy, 2006; Haider-Markel & Joslyn, 2008), and they express the opposing, negative opinions only if the cause is defined as controllable (individual choice). In this sense, the attribution of controllability/uncontrollability and situational and dispositional factors become strong indicators for the possibility, recognised by Gays and Lesbians, to take advantage of social support (Heider, 1944, 1958; Weiner, Perry & Magnusson, 1988).

Attitudes, sexual prejudice and homophobia ultimately seem to be well expressed by the multidimensional concept of Homonegativity. This, in fact, refers to both the aversion and to the anxiety of homophobia, as well as to the range of attitudes towards homosexuality (Hudson & Ricketts, 1980), also including the cultural components and the social roots of intolerance (Lingiardi, 2007). Specifically associated with a type of cognitive strategy, dictated by the need to defend oneself against a threat of disorder and by the will to maintain a socially

unchangeable framework, homonegativity seems capable of flourishing within a framework in which homosexuality is unspoken and considered an etiquette which refers to the concept of disease and sin (Ibidem).

The aggressive behaviour is, in this sense, comprehensible and results in intentional characteristics (to cause deliberate harm to others) and in expectation (that such an act provokes negative consequences in those who suffer) (Garro & Ruggieri, 2012; Ruggieri, 2009; Ruggieri & Boca, 2013).

2. Future Trainer and Teaching Paradigm

Prejudices return to the simplification of information, a useful strategy for the immediate formation of opinions and for the choice of a determined behaviour (Rosenberg & Hovland, 1960; Fazio, 1986). For this reason, the study of behaviours on sexual orientation in university students is important – for those enrolled onto training courses for Support Workers – and also for reflection on their own professional futures. Kozloski (2010) states that the level of cultural background is related to levels of sexual prejudice; in this sense, only if teaching programmes are not based on heterosexual paradigms is it possible to promote the knowledge and the development of relationships with LGBT people.

3. The Research

The objective of this study, therefore, focuses on the attitudes of university students regardless of gender, sex and sexual orientation. The hypothesis is that high levels of training may be related to a better attitude towards homosexuals and towards the possible promotion of civil rights for Gays and Lesbians.

3.1 Participants

603 Sicilian university students (Italy) – of which 43 (7,13%) male and 560 (92,87%) female – enrolled onto degree courses at the branch of education for a period of three years ($n = 396$), and for a two-year masters degree ($n = 207$), between the ages of 18 & 27 years old ($M = 21,18$; $DS = 2,41$). Of these students, 598 declare to be *exclusively heterosexual*, 4 *mainly heterosexual* and, lastly, 1 *mainly homosexual*.

3.2 Procedure

The administration of research tools took place during class hours in line with the teaching calendar, and in accordance with a collective administration that ensures full anonymity to all individuals involved.

3.3 Instruments

Self report questionnaires which focus on the collection of attitudes and are capable of determining their direction (favourable vs unfavourable) and their level (the intensity of the assessment).

Questionnaire on the attitudes of university students^a allows, through the use of a Likert 5 point scale (1= “strongly disagree”; 5 = “strongly agree”), us to see students’ attitudes towards:

- Arguments regarding sex and gender (9 items);
- Gays (GS: Attitudes Scale towards Gays – 16 items);
- Lesbians (LS: attitude scale towards Lesbians – 16 items).

Italian Scale for the Measurement of Homonegativity (Scala Italiana di Misura dell’Omonegatività - SIMO – Lingiardi, Falanga & D’Augelli, 2005), to multiple responses (Likert 5 point scale). This is composed of 56 items, of which 28 investigate the attitudes towards Gays and another 28 towards Lesbians.

3.4 Data Management and Analysis

Data has been collected in specific databases and subsequently processed using electronic spreadsheets and the statistical processing package SPSS.20 for Macintosh. Frequency distributions and descriptive statistics were inputted to examine the distribution of the data.

3.5 Results

The present contribution analyses and examines the attitudes amongst the LGBT community, with a focus on the LG component.

The data analysis of the items considered most significant for the purposes of this contribution, estimated by both tools, demonstrates that 58,08% do not know anyone who could be defined as gay, lesbian or bisexual (don’t know = 16,72%); a statement that refers to the invisibility of homosexuals that can produce harmful effects, especially for the development of relationships between peers (Dessel, Woodford & Warren, 2011). And still the tendency is noticeable to consider the pathological dimension of homosexuality as items F, G & H highlight the absence of knowledge of civil rights (couple, same sex parents, work...) (Item B, C, D, E, I) (Table 1).

^a Worthen, M., Lingiardi, V. & Caristo, C. in press

Table 1. Frequencies (%) of responses related to judgements expressed in regards to male homosexuality
(scale: attitudes vs gay – GS)

Item	Disagree	Do not know	Agree
A. Effeminate men make me uncomfortable	24,63%	16,34%	59,03%
B. If I find that a teacher is gay would remove my child from his class	29,46%	26,54%	44%
C. i would not vote for a candidate openly declared gay	34,76%	23,45%	41,79%
D. The marriage between men should be legal	67,32%	12,34%	20,34%
E. Gays cannot be good parents	11,48%	15,18%	73,34%
F. Male homosexuality is a psychological disorder	39,78%	18,76%	41,46%
G. Gays should undertake treatment to change their sexual orientation	38,23%	16,78%	44,99%
H. Psysician and psychologist should find a cure for male homosexuality	36,23%	23,78%	39,99%
I. Male homosexuality is a threat to the family as a social institution and value	21,05%	16,72%	62,23%

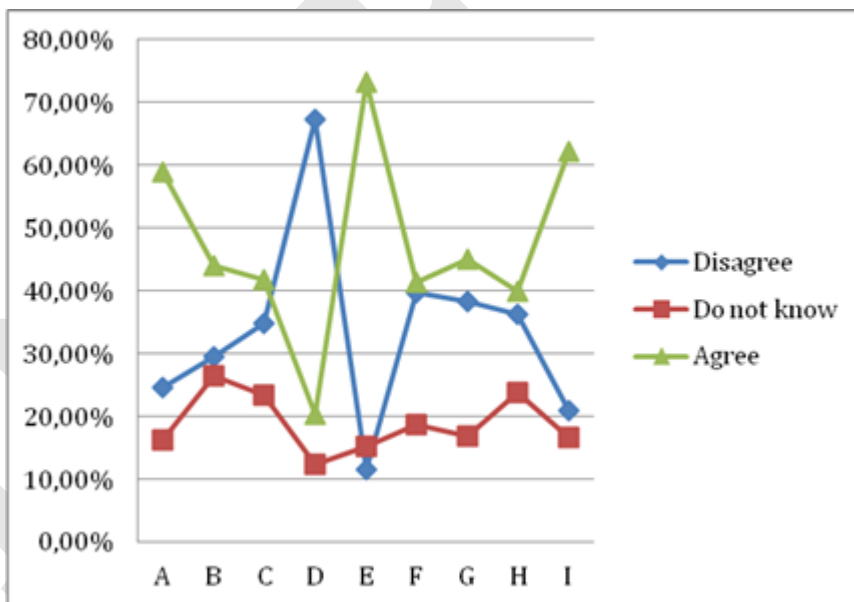


Figure 1. Complex responses – Scale GS

In relation to GS, participants, therefore, amount to an average score of 45,57 in a range that has 16 as an inferior limit (this number represents the total not accepting of gays) and a maximum limit of 80 (that instead represents the maximum score of acceptance).

The currently reported data does not differ from that relating to female homosexuality, summarised below (Table 2 & Figure 2)

Table 2. Frequencies (%) of responses related to judgements expressed in regards to female homosexuality
(scale: attitudes vs lesbians – LS)

Item	Disagree	Do not know	Agree
A. Masculine women make me uncomfortable	32,34%	17,89%	49,77%
B. If I find that a teacher is a lesbian I would remove my child from her class	32,92%	23,45%	43,63%
C. I would not vote for a candidate openly declared lesbian	37,75%	12,76%	49,49%
D. Lesbian marriage have to be legal	71,23%	8,23%	20,54%
E. Lesbians cannot be good parents	23,45%	16,67%	59,88%
F. female homosexuality is a psychological disorder	35,67%	23,12%	41,21%
G. lesbians should undertake treatment to change their sexual orientation	43,67%	14,78%	41,55%
H. Psysician and psychologist should find a cure for female homosexuality	41,60%	15,82%	42,58%
I. Female homosexuality is a threat to the family as a social institution and value	28,83%	19,85%	51,32%

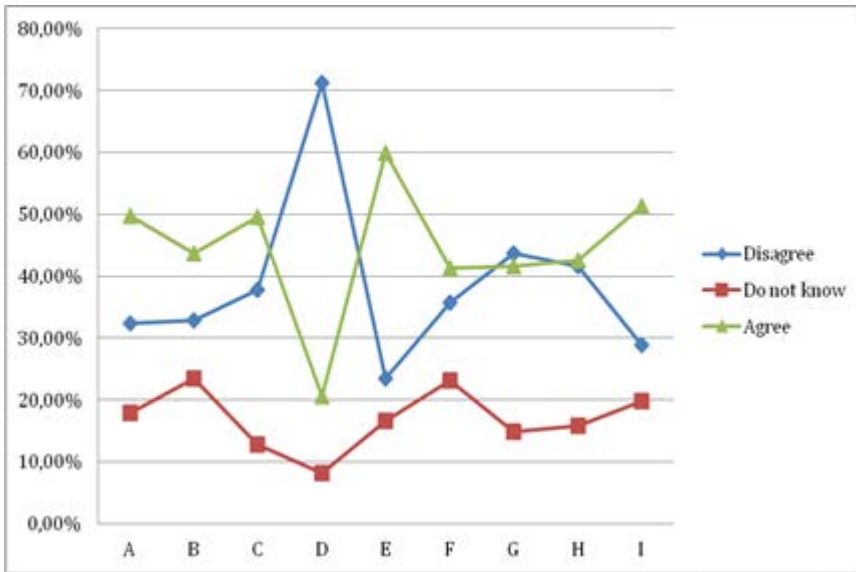


Figure 2 Total responses – LS Scale

Compared to LS, in fact, participants settle for a mean score of 44,29 in a range that, as stated above, has a lower limit of 16 (total non-acceptance of Gays), and a higher limit of 80 (maximum score of acceptance).

In both sections (GS and LS), the transition from Bachelor Degrees to teacher’s courses does not seem to have influenced the quality of the opinion towards homosexuality. The average scores, in fact, do not undergo significant changes, despite a higher level of education (figure 3).

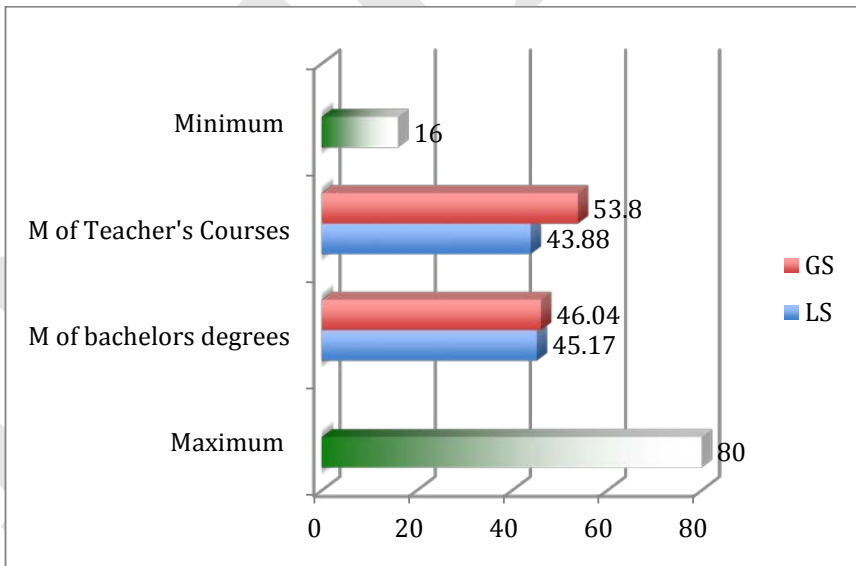


Figure 3: Total responses - Scale LS and GS - Bachelor Degrees and Teacher's Courses

Some of the data, for example Items D, E and I on both scales, also encourage reflection on the levels of prejudice which appear to be related to traditional, sexual roles and to sexual conservatism. These results can appear unpredictable if attention is aimed at the sex of a group of participants, which is female dominated. Previous research, in fact, has demonstrated that women, both adolescents and adults, generally demonstrate low levels of prejudice towards homosexuality, unlike men who, on the contrary, tend to not only have a strong interest towards the distinction of gender differences, but also a tendency to maintain a clear and coherent gender identity (Baker & Fishbein, 1998). It has not been possible, unfortunately, to compare the responses in relation to the participants' sex due to the low number of males enrolled onto the training courses covered by the survey. In fact, in the Italian, academic world there is a female dominance in Humanities courses and psycho-pedagogical courses (Mebane, 2008).

Finally particular attention is given to the percentage of 'do not know' responses (about 25%), provided by both means: a figure which seems to suggest a difficulty expressed by students in assuming a position relative to the thematic focus of attention, avoidance or indifference.

In conclusion, the tables shown represent a stimulus for reflection, since the results are unquestionable entities; in fact, contrary to the design hypothesis, the opinion on homosexuality has not been subjected to changes with the progression of training. The participants of the survey probably think they do not really know any homosexual people, by not assuming an invisibility of these. It is likely that, instead, they are protagonists who are unaware of friendly and informal interactions with members of the out-group, and so they do not find it necessary to review their own beliefs and observe errors of categorisation (Cook, 1984; Herek & Capitano, 1996). The outcome of the survey, again, could be attributed to the quality of the content of the training offered to the students, presumably unarticulated and poor models for training of future social workers (educators, trainers and teachers). The individuals involved in the survey, in fact, will have a profession mainly based on listening to and interacting with others, and whose foundations should find a place for acceptance, not prejudice, of the challenges expressed by the user. The study of attitudes, in this sense, can facilitate the comprehension of the relationship strategies adopted in connection with interpersonal interaction and the corresponding behavioural response. To create a beneficial relationship means, in fact, to change social representations, to revisit their own prejudices and, yet, to sacrifice opinion by going beyond dichotomies before the everlasting movement of research and of change (Morin, 2001).

Through extensive gender training, it is not only necessary for Social Workers to reflect on the ways in which the human being represents reality, but also for those who deal with education in particular to reflect on the processes of categorisation, prejudices and on the possibility of changing these.

It is a journey of lifelong learning, thus being capable of guaranteeing a suitable acquisition of knowledge and valuable lessons, without avoiding confrontation with certain social issues that can appear more challenging than others.

4. Discussion and Concluding Remarks

The current survey, which is by no means exhaustive, will further explore the preoccupation of the students, equally distributed by sex and by another Italian region (Puglia). It is also a good opportunity to analyse the content of educational programmes offered in advanced training at other universities of the peninsula.

The quality and the level of instruction represent, in fact, indicators for the increase of social tolerance. In this sense, the requirement emerges for future professionals of beneficial relationships, to acquire new competencies and high healthcare training to guarantee social support of ample respite to social minority groups, subjects of discrimination and stigmatisation. Job training is also necessary with youngsters belonging to different nationalities, present in high proportion in educational institutions of a society more and more multi ethnic like the present, because it should make the understanding of different cultures possible towards homosexuality. One objective, the latter, that in other countries has been achieved through group meetings that have focused on the heteronormative culture and on the invisibility of sexual orientation. Students sought to create a more welcoming world for LGB people by learning about the views of others and then promoting understanding and acceptance through teaching others about sexual minorities (Dessel, Woodford & Warren, 2011). The training of social workers should, therefore, focus its attention on the acquisition of valid competencies for the integration of different sexual identities, on the creation of a real respect for equal opportunities and on counteracting the discomfort caused by the prejudices against homosexuality. The way in which they coordinate issues with social norms, with understanding sexuality and human well-being is in fact connected to the attitudes and opinions on homosexuality (Heinze & Horn, 2009). Training processes should further extend into education and reflect our professional futures. Internal wrestling with how gender and orientation have been shaped and re-shaped in our own lives, remains to be discussed further (Marshall 2006).

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4th International Conference on New Horizons in Education

Teaching approach for autism students : a case in Malaysia

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Abstract

Children with Autism are isolated in their own nature, not because they are visually or hearing impaired but because of the difficulty of understanding what is happening around them. Pupils' background of Autism disorders as expressed in terms of delayed language development, communication, social interaction and behavior have created problems for teachers when implementing the teaching and learning process in the classroom. This paper presents the findings of a case study conducted in Malaysia to identify teaching approaches applied by the teachers during the process of teaching pupils with Autism. This study was carried out by interviews with two teachers who teach Autism students in Special Education classes and a teacher who teaches Autism students in an Inclusive classroom. All respondents were selected based on criteria of already having more than five years teaching experience and a history of outstanding teacher awards over their service. Verbatim interview data are further supported by the observation data and document analysis. This study has demonstrated impressive results in which teachers are always trying to reach out and attract the attention of students with autism to focus on the classroom teaching by using the elements of love and profound concern. The study also found that patience was apparent in the teachers and exhibited at a high level on a continuous basis during teaching sessions; this was seen to alter some Autism students' negative behavior to a more positive behavior.

Keywords : Teaching and learning, autism, inclusive classroom, special education

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INTRODUCTION

This article is a summary of the findings of a study conducted in Malaysia on teaching approaches for Autism students. Teaching for Autism children in Malaysia has provided a challenge for the teachers to implement instructional approaches that are appropriate to the needs of students. Children with Autism present a series of unique problems that create confusion for all parties involved because of the discrepancy in the understanding of their behavior compared to normal children (Fong Chew Hoon, 2003). Children with Autism are said to have problems caused by differences in social skills, communication, interpersonal relationships and behavior compared with normal children.

Additionally, Norfishah Mat Rabi (2009) also states that students with Autism disorders have problems of language development and communication, social interaction and behavior. These caused problems for teachers in implementing the teaching and learning for them. Every autism child is also said to have different characteristics. Therefore, teaching special education for students with learning disabilities such as autism requires a teacher who is knowledgeable about special needs students, always ready with rigorous lesson plans and adapting their teaching in accordance with the achievement of individual pupils (Rosidah Jemain, 2006).

Ab. Halim Tamuri and Nik Mohd Rahimi Nik Yusof (2010) state that the effectiveness of teaching and learning in schools depends on the capacity and role of the teacher in the classroom. This statement is also supported by Md. Isa Bin Hassan (1993) who pointed to the failure or the success of an educational system depends on the approach or teaching and learning methods used. If the approach and methods are used well, then, the whole education system will run smoothly and successfully. According to al-Syaibani Omar Mohammed al-Toumy (1991), Abdullah Ishak (1989) and Mohd. Azam Mahat (2009), improved methods and approaches are important to help students to acquire knowledge, skills, attitude and behavior change, and to instill the desired values.

OBJECTIVES OF THE STUDY

This study tried to Identify teaching approaches used by teachers when implementing the teaching process to pupils with Autism.

PARTICIPANTS

This study focused on the methods of teaching to three autism students in an inclusive classroom at secondary school, a student in special education class at secondary school and a student in special class at a primary school. The main participants of this study are three teachers who teach Islamic education in those classes. All teachers selected for this study had several criteria such as having more than five years of teaching experience in Islamic

education subject, had been awarded as an excellent teacher over their service, had at least a Bachelor's degree, willing to cooperate and to give commitment to this study and voluntarily agreed to be participants.

RESEARCH METHODOLOGY

This study is a qualitative research case study conducted through semi structured interviews, observations and documents analysis. The interviews were conducted on two Islamic Education teachers in special education classes and a teacher of Islamic education in an inclusive classroom. To support the data, observation in the teaching and learning process was implemented. The document analysis, field notes and diaries were also used to strengthen the findings.

DISCUSSION

The study found that the approach of loving and caring was implemented by the respondents. This was stated by a respondent named Norli, who said ...

"... I try to educate my students with love and affection. I am confident that with love, they will grow up to be an outstanding generation, creative, and confident. They will see the world in a positive way, stepping with confidence, find happiness in life, intelligent face.. trials in the best way ... " (Norli, 2012)

This finding is supported by the view of Ahmad Zawawi (1990) which states that Islam emphasizes compassion in education. Based on interviews and observations, researchers have identified that teachers need to express affection for autism students through five key elements of love, that is, intercommunion, touch, praise, gift giving, and nurture a deep concern for all the problems and needs of students with autism.

Intercommunion

Intercommunion approach or friendly interaction that is often shown by participants was shaking hands, holding students' hand when they go to the toilet and canteen, rub students' back when they sulk, hold their hands for writing, rub students' shoulders, joked pinch, swipe the head, touching foreheads and cheeks to track student body temperature during fever, wipe the tears, wipe the mucus of the nose, tidy students' shirt and pants, and clean up leftover food in the mouth. This finding is also seen to coincide with the views of Zuri and Aznan Mohd Che Ahmad (2011), which state that teachers should always care for and love their students. This finding is also supported by Abdul Ghani Abdullah and Abd. Rahman Abd. Aziz (2009) who stated that the advice that contains polite words accompanied by gentle touch is very meaningful compared to advice without action.

Praise

The participants also had shown their attention and behavior through praises by using positive words and motivation encourage learning. Norli (Participant 1) often called her students ... 'handsome' ... This was to motivate her students to keep taking care of their hygiene. Fatimah often used a word ... 'clever'... as a compliment when a student successfully completed the task earlier than other students. To Fatimah (Participant 2), she often followed by using persuading skills. Similarly, Mr. Adri (Participant 3) always praised his autism students.

Appreciation and Gift Giving

The approach of appreciation and gift giving as practiced by the three respondents in the study are intended to persuade and attract the attention of students in the process of teaching and learning, to entertain their heart, to strengthen the relationship, as on the basis of sympathy and as appreciation for their success. The gift giving in this study also refers to a form of feeding in the school cafeteria, daily spending money for their students' needs, such as for school shoes, pens and notebooks. The participants also gave greeting cards and congratulated their students during the birthday party by giving away colored pencils, candy, chocolate and crackers and key chains. This approach used by teachers are stated as follows: "..... I also held a birthday celebration and gave some gifts to students. I feel happy seeing my autism students having fun".

Care and Concern

Participants also showed their love and care for the students through their concern for them. They gave their attention, concern, met the needs of pupils, acting as a protector, and emotional control to soothe the hearts of students. These were expressed by Norli as in the following passage: "*He's an orphan. If he's not healthy, I really would visit him at the hostel. Bought his favorite food to amuse his heart ...*" (Norli, 2012)

The findings of this study indicated that teachers not only carry out their duties of teaching, but also had shown the capacity to love very deeply. The respondents had shown affection not only when delivering lessons in the classroom, but they had shown concern to take care of the students' welfare outside the classrooms. They had been willing to lend their money for daily expenses and the purchase of essential items for the students' schooling.

Teachers caring, compassionate and being gentle toward the students should be emphasized in the teaching of students with autism. Teaching can be done well if the teacher has the patience, sincere feelings of deep affection for children. No matter how great a single approach used in a lesson, it will not guarantee the success in educating if it was implemented without sincere affection from a teacher to his students. In addition, teachers should avoid from the action of insulting their autistic student in front of other students. Teachers' anger will not bring any benefit to students but will lead to boredom in teaching, creating confusion, resentment, and even emotional stress to children with autism. Researchers concluded that the nature of love, compassion and sincerity are very important implanted in the soul of every teacher involved in teaching and learning, particularly involving students with special needs. Based on these findings, the researchers have developed a teaching approach model for autism students known as the Caring Approach in Teaching Autism Students, as illustrated in Figure 1.



Figure 1: Caring Approach in Teaching Autism Students

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4th International Conference on New Horizons in Education

Teaching specialized terminology at Mendel University in Brno – creating interactive multimedia cd

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Abstract

In 2012, Mendel University in Brno was awarded prestigious international certificates ECTS Label by the European Commission. The ECTS Label confirms that all degree study programs at Mendel University as well as subject outcomes (exams and credits) follow the European credit system; therefore they are also recognized abroad. The ECTS Label provides a transparency and quality guarantee within international student mobility and recognizes the study undertaken abroad. The Diploma Supplement label meets strict European criteria and it is issued to every graduate of bachelor's, master's and doctoral study programs; it follows principles of European university education internationalism in compliance with Bologna Declaration. The preparatory period before granting certificates called for reviewing foreign languages curricula, i.e., the English and German languages, and creating new ones. Another step consisted in evaluating foreign languages methodology and finally, new study materials are being prepared at the Faculty of Forestry and Wood Technology, Mendel University in Brno; they are focused on interactive teaching specialized terminology.

Keywords: certificates, MENDELU project, specialized terminology

1. INTRODUCTION

Preparation of the ECTS Label certificate resulted in reviewing and restructuring existing syllabi for teaching the English and German languages at the Faculty of Forestry and Wood Technology, Mendel University in Brno. Referring to and considering many year's pedagogical and methodological experience, we came to the conclusion that the level of general language knowledge is a crucial criterion: required knowledge should be B2 and higher. We also considered personal experience resulting from long-term foreign language teaching, translating and interpreting and decided to apply a grammar-based approach in contrast to the direct method used in textbooks published abroad.

Students from Central Europe having passed the secondary school leaving examination in the native language are grammar literate; using this knowledge, they are able to learn a foreign language if contrastive linguistics approach is applied, therefore the contrastive linguistics methods can easily be used while teaching English and German languages. Our experience shows that students are able to make a correct hierarchy of grammatical structures, they can discover their consistency, establish further grammar material and create a good foundation for mastering other foreign languages; they know grammar terminology and categories unambiguously when

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grammar-based method is used. However, the conventional grammar-based method has to be complemented with the listening skill comprehension, reading comprehension and writing using the latest textbooks written by professional native speakers; we are offered other teaching varieties while combining these two sources because Czech textbooks and “foreign” textbooks apply different methodologies.

2. PREPARING MULTIMEDIA INTERACTIVE CD

An interactive multimedia CD came out after two-year work with specialized literature in the field of agriculture, horticulture, forestry; in addition, there was another publication covering intercultural studies and grammar summary. Currently, we are working on a new product, an interactive multimedia CD; we cooperate with experts so that specialized tailored software could be developed.

The CD should be a good learning support as well as an e-learning product and it is designed for full-time undergraduate students, combined study programs and the academic staff. Numerous PhD students participate in the courses because they need to improve their language knowledge before taking the doctoral examination. The aim consists in reinforcing the foreign language competence courses trainees in order to enhance their chances and competitiveness at the domestic and foreign labour market; students should be able to summarize, discuss, explain and present technical issues and research results in conferences, internships, lectures and publish in foreign journals and proceedings. Doctoral students are particularly focused on the academic skills, i.e., writing, reading, and speaking because there is still the biggest discrepancy between theoretical and practical knowledge.

3. CONTENT AND METHODOLOGY OF MULTIMEDIA CD PROCESSING

Since the curricula overlap in some fields of study, the content will be interdisciplinary focused. The educational CD creation made us create new teaching materials using the latest modern design. We apply long-term teaching experience and knowledge acquired while working with technical texts starting from simple to highly advanced specialized vocabulary and terminology. Every chapter requires careful selection and quality processing quality of source texts. What are high-quality texts? Current topic, compressed specialized lexis supplied with graphs, photos, etc. We intend to select 40 texts in English and 40 in German. Every chapter will contain the introductory text followed by series of variable exercises. The experience shows that every lesson should be arranged using the same frame: the introductory text, then practicing vocabulary derived from the source text, grammar presented and derived from this text and practiced exclusively using specialized terminology from the introductory text. The 40-chapter set will be bonused: there will be added specificities of specialized texts, common phrases, abbreviations, acronyms, numerals, etc.

The structure of every chapter/lesson must be the same: too many new and different exercises are confusing for learners and they have problems to handle and manage the material thoroughly. Methodology selection is a crucial key stone, therefore the most efficient types of exercises are chosen, the existing software is modified and new one is being gradually developed: the attention is paid to lexis, practicing vocabulary, grammar, developing

all four skills; exercises cover listening comprehension because the experience shows that even good students are able to manage grammar, phrases, express present ideas verbally (oral, written), however listening with understanding case the most serious troubles. The developed software must offer self-students combining various methods and training different skills: two skills must always be involved, e.g. listening/writing, speaking/writing, etc. Attention is paid to grammar correctness, form and culture of expressing and presenting ideas, practical exercises are targeted at academic reading and writing specificities.

4. COLLABORATION WITH OTHER PROFESSIONAL INSTITUTES AND INSTITUTIONS

Interdisciplinarity requires consulting specialists and exchange of experience within Mendel University, universities abroad and practical verification at partner institutions. Teaching the academic staff also enables further contacts and sources of knowledge and latest published materials from conferences. The staff members enhance and improve the language knowledge as well as language presentation skills and competence to teach specialized subjects in a foreign language: presentation skills are beyond the scope of a multimedia CD. Learning helps them to conduct subjects in English, arrange seminars, prepare and carry out presentation in a typical English-Saxon style; communicative methods dominate in these courses method. Presentations of the trainees are evaluated by other participants, therefore arguing and discussions are practiced as well.

5. DISCUSSION

Having finished the first third of the project, it becomes more and more obvious that every teaching and learning process, regardless whether general language or specialized, must consistently monitor vocabulary and lexicology. Students acquire the latest terminology while reading original literature sources written by native speakers; the aim consists in supplementing specialized dictionaries, which lack neologisms or expressions just difficult to translate. Available specialized dictionaries just repeat and reprint the same terminology, which is hardly ever complemented with the latest terminology of the field: neologisms are exceptional or they miss completely. The final training goal should be skills focused on resumes, abstracts, conclusions, conference papers, etc. It is also necessary to practice listening comprehension; this skill is elaborated least of all and calls for more enthusiasm and effort.

6. CONCLUSION

In the course of the project activities, students and teachers will acquire new experience while using specialized vocabulary. The results will be verified by samples of students; questionnaires, interviews and investigation will help to modify, adapt, precise, target and improve the effectiveness of newly elaborated specialized language teaching methodology.

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Teamwork in crossdisciplinarity

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Abstract

The École Polytechnique de Montréal has integrated an approach of teamwork in its twelve engineering programs, in the bachelor's degree program since 2005. Students must take a compulsory 45 hour course on teamwork and are then accompanied with team coaching throughout the four years program, in all the engineering integration projects. These integration projects are generally ones in which, over a session, the students work in teams to conceive an engineering project. Within the framework of these projects (1 per year), a group communication specialist meets every team for approximately 60 minutes. This process promotes the transfer of the accumulated knowledge acquired in the teamwork course to their projects and helps identify the group processes at play in their teamwork dynamics. The objective pursued by this conference is to present the innovative formula used by the École Polytechnique de Montréal and to demonstrate by clear examples how it allows the development of skills in teamwork in all the scientific disciplines.

1. Introduction

Private and public organizations are in full mutation. The growing complexities of the work environment are causing such great changes that it is difficult for someone to manage, elaborate solutions and to make decisions on their own. More and more, the working world is using collaborative-style management; multidisciplinary and interdisciplinary teams seem to be becoming the norm (Federman-Stein 2000). In Québec, as elsewhere in North America, the engineering world has transformed itself in recent years. Where once the engineer worked alone, there is now a team. The expectations of the engineering milieu in regards to work team competencies are becoming more demanding. That explains why certain engineering programs are looking to integrate group work training. The production of work in teams within courses has grown in popularity because it allows the integration of pedagogical approaches that correspond to the expectations of the workplace (Federman-Stein 2000). Therefore, it has become important to explore the conditions that will allow the integration of new competencies and pedagogical approaches in team work in engineering schools.

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In 2003, the École Polytechnique de Montréal integrated, entirely and massively, in the course curriculum for the students of 12 of its undergraduate programs, some teaching methods linked to the needs of the job market. Among the objectives of its new *training project*, put in place since 2005, the will to reinforce the development of team work abilities is certainly considered to be a priority. Interpersonal abilities were identified as one of the necessary strengths of the specifications of the training project. Since 2006, 2 credits have been accorded for the integration of teamwork and interpersonal communications courses in the undergraduate programs, which demonstrates to students that these competencies are of the utmost importance in their training to become engineers.

A 45 hour mandatory course is the foundation of a team coaching over a 4 year period in every engineering integration project. A team of specialists in interpersonal communication and small groups are responsible for teaching the courses and the monitoring of the teams in their integration projects. This innovative and personal approach aims to motivate students to put into practice these skills and this approach can be applied to disciplines as varied as Design, Computer Science, Engineering, and even Ergonomics.

2. Teamwork Courses at the École Polytechnique de Montréal

Teamwork provides individuals with the opportunity to get to know themselves better, to use their leadership, to take on responsibilities in relation to others, to promote their ideas and points of view, to open up to others, to listen and question the ideas of others. Reaching these objectives necessitates, however, an openness and effort on the part of the students. Our experience has shown us that to simply ask a group of students to execute a task and produce a report does not guarantee that the group will reach their objectives. To develop this type of ability, the students have to learn to concentrate not only on the task to be accomplished, but also on themselves, on the interactions and the group dynamics taking place in their work groups. The development of introspection seems to be essential to provoking the change and the awakening of a level of consciousness that is necessary for collaboration (Young 2002). The students must learn to look at each other, to question themselves while identifying their strengths and weaknesses (individual and team) and to determine objectives for realistic, concrete changes to develop their abilities and eventually their competencies.

2.1 An Experiential Approach Oriented towards Change

A founding principle underlying the training is the idea that through experience comes knowledge. We can link this to the idea that comes from Confucius, "I hear and I forget. I see and I remember. I do and I understand." Each class begins with a practical activity that places the student in a difficult situation that necessitates the use of interpersonal skills and/or teamwork. The experience facilitates the emergence of certain phenomena that are then discussed as a group and colored with numerous examples drawn from the engineering milieu. We have established that the student, who has lived the situation, is able to grasp the depth and importance of the notions that they are taught. As a result, the concepts generally associated with human science are transferred through practice and are, generally, no longer considered as an abstract idea by the students. That is why the pedagogy of this type of training combines a practical dimension and a theoretical dimension. The learning objectives are at once both of a cognitive and behavioral nature, of the order of knowledge, of know-how and inter-personal skills.

This enunciation aims to allow students to learn cognitively and experientially from these phenomena and to develop their reading capacity and develop certain skills in action.

Therefore, the development of teamwork skills at Polytechnique de Montréal stems not from technical learning but through experience. This type of training implies a modification of attitudes, beliefs and personal values demanding a strong involvement from the students. As is the modern tendency in teaching, our methods are student-centered and require a great deal of involvement on their part (Assister 1995).

Kegan (1994) states that the complexities of today's world and the need's of the working world necessitate, beyond new skills, the attainment of a higher level of consciousness, that is to say, a change in the way we interpret and react to our world. Young (2002), for his part, affirms that “transformational” leadership, is strongly linked to the level of consciousness of management. It is they who are capable of considering a multitude of points of view, since they can take into consideration that various interpretations of the same event can be simultaneously valid. They adopt a systematic mentality, looking for interdependencies rather than the relationships of cause and effect and focus not only on results, but also on the process (Cook-Greuter 2001). While seeking the development of a higher level of consciousness and the skills that appear to flow there from, three principles are at the base of the team work training: 1) we learn in interaction, 2) we can improve our abilities while experimenting with new behaviors and asking our colleagues for feedback, 3) we develop our level of consciousness and our reflex to improve as we engage in a process of self and group analysis, as well as identifying and practicing our objectives of change. Hence, the courses affect the whole person, their way of knowing, doing and being and are part of a short, medium and long-term process.

2.2 Some Concepts Taught and their Objectives

Two important interdependent themes are touched upon in the 45 hour training through teamwork. Firstly, some concepts linked to interpersonal communication are presented: mental models (mental maps), perceptions, emotional and relational intelligence, listening, critical and constructive feedback and conflict management (Bohm and Nichol 1996, Cormier 2004, Caruso and Salovey 2004, Wind and Crook 2005, Weisinger 2006, Goleman 2009). We consider these skills to be the foundation of collaborative team behavior. Secondly, the concepts associated with the literature are addressed in small groups through team work: some models of small teams, the characteristics of a team, norms, roles, modes of interaction, facilitation, cohesion, power and leadership (Bormann 1975, Tuckman 1977, Arrow, McGrath and Berdahl 2000, Saint-Charles and Mongeau 2006, Landry 2007). These notions foster understanding of group dynamics, important elements that it is composed of, and its management.

2.2.1 Mental Models

For Wind and Cook (2005), mental models represent the way that we look at the world. This mental map helps us to orient our way of entering into communication, of understanding and seizing the world. A reflection on the influence of our mental models allows a transformation of our beliefs and assumptions that underlie our decisions

and our openness to the ideas of others. Since we forget that we function with mental models, the objective is to remind ourselves that we do not deal directly with reality. As the Talmud says, we do not live in the world as it is, but rather as we are. Take the example of a student who is not able to understand that his interpretation of a conflict situation in a team is nothing more than a hypothesis among many - that his understanding greatly relies on his mental models that stem from his past experiences, his values, his emotions, etc. - he risks being stuck in his position and closed to the resolution of the problem. Newburg and Waldman (2006) argue, as well, that if we are conscious that our mental model is nothing more than a hypothesis, a “guess”, then we can remain open to the opinions and points of view of others without feeling threatened or upset. They add that the development of a holistic and systemic vision, as well as links to be made between our mental models and our perceptions, allow the team members to reach the state necessary to be disposed to the development of a common intelligence. Thus, the members of the team are no longer in opposition to one and other, they perceive each other as allies and can make discoveries or make decisions that, individually, they would not be able to.

Like these authors, we believe that to make room for a real collaborative effort with others, it is necessary to approach it through the development of this awakening to the awareness that our manner of interpreting is simply one of many possible ways that are just as valid (Cook-Greuter 2001). The latter also promotes a greater sensitivity in the student in terms of the effect of their behavior on others and the effect that the behavior of others has on them. Furthermore, we think that the capacity to practice active listening, to develop emotional intelligence, to give and receive critical and constructive feedback, as well as resolving conflicts, depends largely on the awareness and the development of a holistic and systemic vision of the group.

2.2.2 Group Models

A model is a representation of the organization or the workings of something. This representation is generally proposed in the form of words and images. A road map, for example, will allow a driver to follow the main roads and find their way. It serves them, in a way, as a landmark, as a guide. Moreover, explaining the workings of the group demands the use of a representation of its principle elements and their function. The purpose of a group model, its usefulness, is to illustrate how a group is organized, and how its different elements interact with each other without, however, claiming to represent all of its complexity. Even if these models have their limits, they still facilitate a certain adaptation and intervention in the reality they represent. To establish a useful tool, we could say that a model, as a conceptual system, must meet a certain number of criteria. Firstly, it must organize the entirety of the data of the literature in a pertinent fashion. Next, its statements must be linked to our intersubjective experience of reality. Lastly, its hypotheses must be verifiable and modifiable (Saint-Charles and Mongeau 2006). We can add that “a good model is one that is capable of orienting the action” (Miles and Huberman 1994).

In the team work part of the course, we present 3 models of small groups capable of orienting the action: a 5 stage linear model (Tuckman 1977), a systemic model in 3 zones (Landry 2007) and a “constructivist” model of structures and functions (Saint-Charles and Mongeau 2006). Tuckman's model offers the first milestones for the understanding of the development of group dynamics. Figure 1 shows group development in 5 stages.

1- Forming	2- Storming	3- Norming	4- Performing	5- Adjourning
Courtesy, prudence, avoidance of serious confrontation, little definition of roles and dependence on the leader.	Tensions, confrontations, criticisms, defining of group objectives and the formation of cliques and struggles for power.	Defining of roles and duties, consolidation of the “rules of the game”, greater listening, cooperation, collaboration and involvement.	Confidence, interdependence, equilibrium of the group between its task and people-related goals, challenges and creativity. Many teams never reach this stage.	End of the task, disengagement, diverse climate, anxiety, deception or relief. The author reminds us of the importance of paying particular attention to ending the life of a group.

Figure 6 : Tuckman's Stages

The interesting thing about the Tuckman's model is that it allows a team to quickly situate itself in its development. It provides the team with the basic information to understand what is problematic in its current functioning and what can be done to improve it. For example, a newly formed team could, by identifying what characterizes stage 3 of the model, give itself the means to reach it more quickly. If, in the norming stage, the rules of the game are clear, cohesion is good and each member's role is clearly defined; it is the inverse for the forming stage, associated at the beginning of the life of the group. In fact, the latter is defined by a lack of clarity of the roles and the norms and a lack of cohesion that is displayed in the form of an exaggerated level of prudence in the members who fear to clearly state what they truly think. The team can decide, as a strategy of change, to discuss its norms and roles, so as to make them explicit for everyone in the group to improve its performance. It could decide to organize a lunch or even a group activity to improve the level of cohesion through getting to know each other better. Through these two actions alone, the team can give itself the means to pass through the stages and achieve greater efficiency. This first use of Tuckman's model by the students, sets the necessary foundation for the integration and understanding of the subsequent models (Saint-Charles and Mongeau 2006, Landry 2007), of greater complexity.

2.2.3 Proposed Actions for the Development of an Efficient Team Dynamic

A team can define itself according to certain characteristics: 1- small number of members: 3 to 20 (Landry 2007), 2- Face to face interactions, direct communications (Anzieu and Martin 1994, Saint-Charles and Mongeau 2006, Landry 2007), 3- pursuit of goals valorized by members, common objectives (Anzieu and Martin 1994, Saint-Charles and Mongeau 2006, Landry 2007), 4- development of an emotional life (Anzieu and Martin 1982, Mongeau and Saint-Charles 2006, Landry 2007), 5- appearance of norms and roles (Anzieu and Martin 1994, Mongeau and Saint-Charles 2006, Landry 2007) and 6- development of a structure of power (Mongeau and Saint-Charles 2006, Landry 2007). These characteristics and the models that stem from them help in the understanding of the elements at the heart of a group dynamic and its management. Thus, certain behaviors in a team setting are practiced within the framework of our training, in the courses themselves and through the follow up (or monitoring) in the engineering projects :

- agree on a common goal (the what) by clearly defining your tasks, your objectives and the way to attain them.
- develop good organization (the how) and regularly question yourself about it by conducting, among other things, a team feedback session at the end of each reunion on what went well and what needs to be improved.
- establish the working rules, explicit group norms.
- develop links between members, try to develop group cohesion (the climate); by giving, for example, individual and team feedback regularly.
- clearly define each person's role linked to a task and the organization of the task.
- verify the comprehension of the task by insuring that everyone understands what each person's job is by conducting a round table where each member presents the progress in their tasks and their understanding of what remains to be done.
- utilize each member's strengths, starting with the strengths identified by the individuals themselves, or still, by using tools such as group interaction methods (Saint-Charles and Mongeau 2006).

3. Monitoring of teams in integration projects

We believe that a 45 hour training course, centered on understanding and experimentation of interpersonal and team work communication phenomena and techniques is essential, but not enough to attain an adequate level of skills and competencies in the domain. This is why this basic training is a cornerstone of the organization and management of team work performed in integration projects, among others. The integration projects are projects of one session in which the students produce a team project in engineering. From the creation of a scale model of a bridge, to the production of a miniature robot, or even the design of an industrial product, the projects are as varied as the teams. A specialist in communications and team work conducts one visit per team for each integration project and allows the students to perfect their skills in this domain throughout the four years of their training. Figure 2 shows the monitoring of the teams offered in all Engineering programs at the École Polytechnique de Montréal.

Interventions are done in 3 or 4 integration projects per engineering program:	A specialist does:
Aérospatiale, Biomedical, Chemical, Civil, Electrical, Geological, Industrial, Computer, Software, Mechanical, Mining Engineering and Engineering Physics.	<ul style="list-style-type: none"> - One visit per team - 45 minutes to an hour of coaching per team - Personal interventions for teams in difficulty (conflict) - Tool available at the website: www.hpr.polymtl.ca

Figure 7 : monitoring of teams over 4 years

The monitoring is more than a simple managing of work processes and constitutes a central element of team work training. Group phenomena are “complex” because of the singular dynamic of each team; the interaction of

the individuals that compose the teams make each unique (Anzieu and Martin 1994, Saint-Charles and Mongeau 2006, Landry 2007). During monitoring, the team work specialist must adapt and put their knowledge of theory and practice of small groups at the service of the team. Together, they bring the complexity of the performance of the team up-to-date. Consequently, the specialist does not make any decisions for the group, does not take on the role played by the team members, but rather supports them and provides the necessary tools to make the best choices for good group performance. Once the monitoring is completed, the team has a more precise vision of their singular dynamic, which promotes understanding and accountability of the students faced with their common tasks and objectives of individual change to be put into practice.

3.1 General monitoring

Regular and varied monitoring are offered to the teams all through their studies. Two important types of monitoring are practiced: 1- “general” monitoring (the specialist acts as an instructor) and 2- “crisis management” type monitoring (the specialist acts as a mediator). The latter is offered when major problems arise in the group. “Generous” monitoring is offered to all teams during the integration projects. It promotes the transfer of learning of themes related to team work and the management of the group by team members. To do this, the specialist guides the group to reflect on its own dynamic so that they can assess their strengths as much as their weaknesses that need improvement. To achieve this, the specialist can use different strategies in order to probe the themes associated to each of the monitoring sessions. These strategies gradually touch upon three themes. Figure 3 presents the sequence of the themes covered during the monitoring sessions over the four year period.

1st year: Organization	2nd year: Emotions	3rd year: The General Dynamic of the Group	4th year: The General Dynamic of the Group
Time management, work planning, separation of tasks, physical and material organization, appearance and maintenance of norms related roles.	Cohesion, roles related to emotions, creation of sub-groups and their impact, effects on climate and common goals, emotional norms, listening in groups and resolution of problems.	Equilibrium of the three dimensions (organization, emotions, power/leadership), methods of interaction, roles and tasks, leadership, group culture and norms.	Equilibrium of the three dimensions (organization, emotions, power/leadership), methods of interaction, roles and tasks, leadership, group culture and norms.

<u>Objectives:</u> <i>understanding the direct effects of this organization on efficiency and productivity of the group.</i>	<u>Objectives:</u> <i>understanding the direct effects of good management of the climate on the efficiency of group performance.</i>	<u>Objectives:</u> <i>understanding the direct effects of an overview of the group dynamics and the application of concrete actions to affect change in the efficiency and performance of the group.</i>	<u>Objectives:</u> <i>understanding the direct effects of an overview of the group dynamics and the application of concrete actions to affect change in the efficiency and performance of the group.</i>
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Figure 8 : three types of “generous” monitoring

The sequence of the monitoring sessions has been elaborated with the goal of understanding the major elements of team work, to avoid redundancies and promote the progression of learning. As well as putting the emphasis on these central elements associated with each of the monitoring sessions, the specialist promotes the practice of critical and constructive feedback within the framework of the meetings. Depending on the needs of the group, the specialist can insist on the use of feedback focused on individuals or on the team. The specialist promotes the development of a systemic and comprehensive vision of the group and insists on the taking into account of the effect of interactions between group members on the individuals and on the development of the team.

4. Conclusion

This article tried to explore what the parameters are, such as certain conditions, of the learning of collaborative work and of the development of skills for team work at the École Polytechnique de Montréal. Answering this kind of query involved identifying and clarifying how we treat, enlightened by a certain review of the literature, certain key concepts, approaches and team work methods in our practice. Our review of the literature has allowed us to note the abundance of research in this field and to detect a coherence, so as to construct our learning model and competency development. Of course, this training model is not definitive or exclusive, other concepts, methods and approaches could be possible. The possibility of using other ways, illustrates the complexity of the phenomenon that is the group, but especially the difficulties and interest that there are to attempt to find pedagogical methods for teaching and the development of competencies in this field, for our students. This is the challenge that we attempt to meet in laying the foundations of a pedagogical approach in team work for disciplines other than Human Science. Finally, we think that it would be useful to validate our efforts for skills development in our students through an in-depth study of their team work competencies, as perceived by the employer, either of the student in job placement or of the junior engineer starting their career. The study of the effects of this training, within the framework of a wider ranging research, could certainly promote a greater advance of knowledge and a better accompanying (framework, guidance) of our students in the study of team work.

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Technology-enhanced learning scenarios based on digital ink & tablet PCs

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Abstract

Numerous studies show that ICTs can bring about major changes in the classroom, thereby easing some of the problems associated with the traditional model of instruction. There is widespread consensus that digital-ink technologies (Tablet PCs) have great potential for encouraging interaction in the classroom and promoting a more dynamic learning environment. However, it seems convenient to support instructors who plan to incorporate these technologies, by conceptualizing their educational capabilities. To this end, this work addresses an approach based on the use of concept maps. During the three last years, several experiences were successfully implemented and tested in different Computing disciplines.

Keywords: digital ink, tablet PC, pen-based technology, conceptual maps, instructional design

1. INTRODUCTION

In relation to the teaching and learning models, a recently published report (Fundación Telefónica, 2011: pp. 47) states, “A trend toward a participatory and collaborative model has been noted, in which learning takes place as the student performs activities and acquires knowledge through interaction with the environment.” The report goes so far as to state, “It is anticipated, for example, that in the year 2015, 80% of university professors will be using new, ICT-supported didactic models in their classes.

In general, we could say that teaching strategies must move from the still widespread traditional lectures and concept-based teaching to student-centred and competency-based instruction. However, these changes may sometimes produce some issues related with students’ attitudes and motivation, instructor workload, logistic issues, or even reluctance to the changes. In this context, there are evidences that technology can drive major positive changes in the classroom, helping to face these problems. In particular, the flexibility of Tablet PCs and other digital-ink enabled devices have demonstrated their potential, at the college level, to achieve a wide range of educational goals as well as promoting a more participatory classroom environment (Sneller, 2007; Tront, 2007; Mckenzie & Franke, 2009).

Taking into account the complexity and explosive development of these technologies, it seems necessary to support instructors in their use by conceptualizing educational and technological possibilities. There are different tools to represent and organize these knowledge items and we have selected conceptual maps (Novak, 1998) as one of the more flexible and powerful techniques to graphically sustain this process. This work discusses on the use of conceptual maps as tools to model both the instructional domain and the technology domain in order to provide instructors with guidelines to design and develop engaging and interactive Tablet PC-based learning scenarios.

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The remainder of the article is organized as follows: section 2 introduces concept maps as a way to support instructors who plan to use these technologies to improve the classroom environment; section 3 describes the way the approach is been implemented and tested, and finally, section 4 draws some conclusions.

2. Supporting teachers to introduce digital-ink technology

This section describes our approach to support faculty who plan to use digital-ink technology to create more interactive and engaging classrooms. The first step in the proposed process is to develop a concept map representing the instructional model for the learning environment where the intervention is to be made. However, in order to facilitate the subsequent processing of the information contained in the maps, the different concepts of a rather generic instructional map were converted to questions, and a complete questionnaire was developed by listing these questions in the same hierarchical order as the concepts on the map from which they were taken. Then, the approach uses a concept map that was developed to give an overall concept of digital-ink technologies: their features and the types of devices that provide them, the operating systems that support them, the services they offer, and the associated software tools, among other aspects. The terminal elements of this map are related to the aspects of instruction that may be enhanced by them, as depicted in the Figure 1.

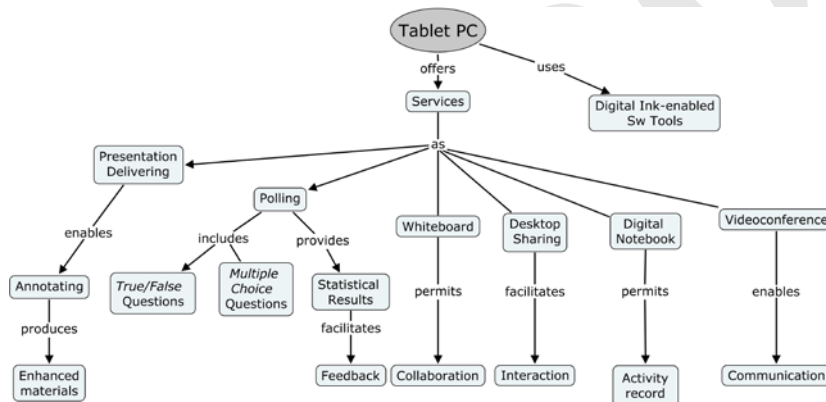


Fig. 1. Detail of the Tablet PC conceptual map concerning services.

Once the instructional and technological domains have been defined using the appropriate concept maps, the next step is to correlate them to each other. In other words, our proposal aims to infer information from the elements that make up the two concept maps (concepts and correlations) so as to give teachers some recommendations for using these technologies that have been adapted to their particular instructional approach, including specific examples of ink-enabled software tools.

3. Implementing and testing the approach

To validate the proposal described, a number of workshops were conducted during academic years 2010-2011, 2011-2012 and 2012-2013, in which teachers were given a presentation on the capabilities of digital-ink

technologies and, at the same time, experimented with tablet PCs and other digital ink devices in a classroom configured for this purpose. More than 100 engineering professors participated in these workshops.

Before attending the workshop, participants were invited to answer a pre-questionnaire in order to obtain each one's particular instructional model.

Figure 2 summarizes the responses obtained on the pre-questionnaire from those who attended the workshops held during the last three academic years. The percentages shown are for certain questions only, those where these technologies have shown superior capabilities. There is a remarkably high number of professors who use digital presentations in lecture-based classes (95%); who support their content presentation with graphic elements such as diagrams, figures, and schematics (84%); and who incorporate an element of student classroom evaluation (64%). Teachers also commonly assign activities that make use of graphic elements (69%) or open response exercises (70%).

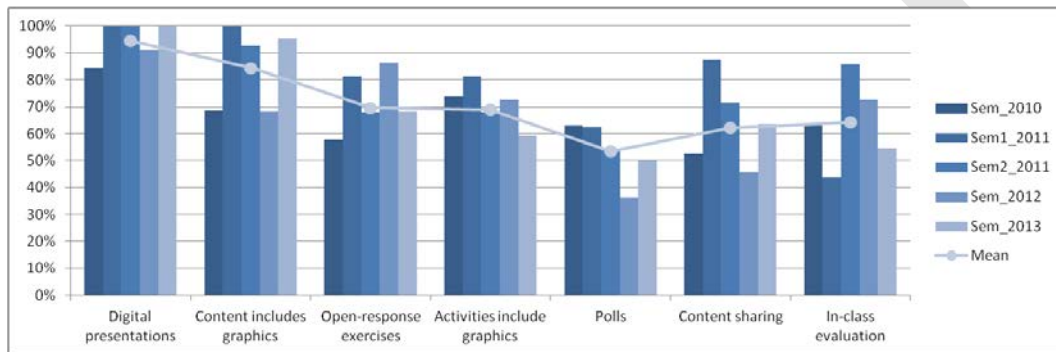
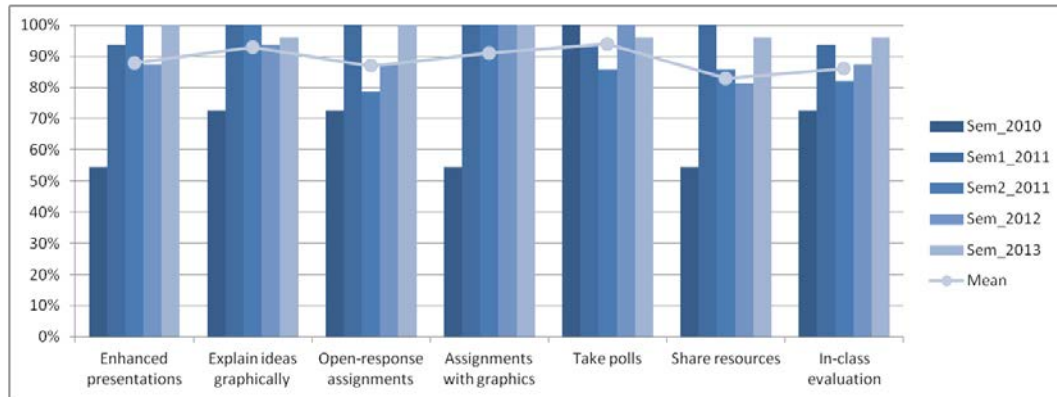


Fig. 2. Summary of Pre-Questionnaire Results.

Based on the instructional capabilities included on the aforementioned technological concept map and experiences with applying them in various disciplines, a list of good practices in using these technologies was drawn up. This list was used to produce a post-questionnaire on digital-ink technologies capabilities that was given to the workshop participants at the end of the workshop. In this way, and after experimenting with the technologies, they assessed the instructional capabilities of these devices in terms of suitability for their particular context.

Figure 3 summarizes the responses on the post-questionnaire. Firstly, it is important to point out the high percentage obtained (above 83%) for all the dimensions analyzed, what confirms, from the point of view of the workshop attendants, the potential for improving those aspects. The percentages are particularly high for the ease of taking polls (94%), presenting ideas graphically (93%), performing tasks requiring graphic elements (91%), and evaluating students on class participation (86%).

Fig. 3. Summary of Post-Questionnaire Results.



4. Conclusions

In this work we have presented an approach to support faculty who plan to use digital-ink technologies to create more interactive and engaging classroom environments. The proposal is based on the conceptualization of instructional and technology issues using concept maps to represent the corresponding knowledge. Starting from the learning requirements of a particular context and the educational potential of these technologies, instructors are provided with some guidelines that help them to properly develop new learning scenarios.

This approach has been applied in an educational technology-enhanced context based on digital ink technologies and several workshops have been developed. This approach implementation has enabled the detection of interesting connections between instructional and technological issues revealing the potential services provided by digital-ink technologies according to the proposed teaching guidelines.

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4th International Conference on New Horizons in Education

Technology as an Activity System for Self-Directed, Expanding Learning: An Analysis Based on Activity Theory

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Abstract

This paper uses a theoretical grounding in activity theory to analyze technology as an activity system for enhanced self-directed learning outside of the classroom. The analysis considers how technology serves as an activity system that mediates and shapes student learning to reveal the complexity of the relationships between the learner (the subject) and the learned (object) as well as between the learners and artifacts. The paper contributes to our understanding of the dynamics of technology. Technology is not a neutral tool; it becomes a generative force that shapes the self-directed and social nature of learners' knowing, doing and being and presents implications for educational practice.

Keywords: technology, activity theory, activity system, learning

1. Introduction

The prevalence of technological innovation has created the contemporary 'network society' (Castells, 1996) and 'network culture' (Taylor, 2001) in which we live. Educators must understand how students may use technology to create a 'learning network' (Koper, 2009) that facilitates and expands student engagement in learning beyond the classroom. Virtual learning networks (Giani, 2004) can serve as support mechanisms that transcend time and space to connect individuals on a social level. Contemporary learning can be a convivial, collective experience rather than a solitary, individual activity. In this context, technology is typically viewed as a material 'thing', such as a tool for information exchange and communication or a platform for establishing 'virtual communities of practice' (Hibbert & Rich, 2006). Little research has explored the dynamics of or the possible deeper relationship among technology, human activities and learning.

A theoretical framework is required to highlight and facilitate our understanding of the dynamics of technology and human learning. This paper employs activity theory to conceptualize technology as an activity system that actively shapes and mediates student self-development and professionalism beyond that which a neutral tool can achieve. The structure of this paper is as follows. First, this paper describes how technology has shaped and facilitated the tendency for self-direction in contemporary learning. Second, activity theory is introduced and

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used to illustrate the role of technology in mediating learner agency and development in actual practice. An example is provided to demonstrate how a group of university students in Taiwan have used Facebook to achieve their learning and professional development goals. We obtained consent from the participants and indicated that we would protect their privacy (e.g., names and photos) in our use of Facebook content to illustrate the dynamics of technology as an activity system. This section bridges general theory with a specific example of practice. Finally, we conclude with implications for educational practice.

2. Technology

Although technology is now ubiquitous, it is generally viewed as a neutral tool that assists learners in knowledge acquisition or as a platform external to learner agency. The question arises as to whether this technology-as-neutral perspective adequately captures the richness and complexity of the role of technology (Mlitwa, 2007). Technology partially serves as a generative force that shapes learner agency (Tan, Kim, & Yeo, 2010); learners use technology for self-development, self-determination and self-construction.

The technological revolution, which features information technology (computers) and communication technology (the media), suggests a change in ideas of knowledge and learning. Technology enables the expansion of a learner-centered learning space and therefore undermines educators' authority to speak truth and knowledge. Technology lessens 'the centrality of institutional education' (Usher, 2007, p. 221) and facilitates knowledge and learning shift 'from the millenary concept of centre to the concept of network' (Giani, 2004, p. 185). Educational institutions lose their exclusive role in producing knowledge because knowledge production can occur anywhere. Rather than hierarchically transferring knowledge, technology ontologically shapes the learning process as a networking system in which learning is essentially a process involving 'interactions with a greater variety of knowledge producers than in the past' (Mlitwa, 2007, p. 54). Learners use technology to directly access knowledge and to participate in the necessary self-direction and self-determination of their own learning construction. Hence, technology has facilitated the tendency toward self-direction in contemporary learning.

Technology facilitates learner agency, and there is an emerging need for a more applicable theory that accounts for the active role that technology can serve in shaping learner development. This paper proposes activity theory as the lens for understanding technology beyond the enabling of learner cognitive processes to include the mediation of learner action and to ensure lasting education (Mentkowski & Associates, 2000).

3. Activity theory with an example

Originating from Soviet psychology, activity theory has evolved through the contributions of many theorists, such as Vygotsky (1978), Leont'ev (1978) and Engeström (1987). Activity theory focuses on 'development and change' (Kaptelinin & Nardi, 2006, p. 226) and 'practice' (Nardi, 1996, p. 7) and serves as a useful framework for conceptualizing technology as a dynamic mechanism that conditions and enables development and change in learners and in the mechanism itself. Here, we bridge activity theory and practice with an example of a virtual (Facebook) community to illustrate the dynamics of technology as an activity system. Two years ago, the community was established by a group of students enrolled in a pre-service teacher education program. These students had the common goal of passing the national teacher certification exam and ultimately securing appropriate teacher posts in vocational secondary schools. One of the group founders realized that the university program focused on the intrinsic delivery of teacher knowledge via disciplines, with little connection to student career development. The students realized the need to self-direct their own learning using online technology as a learner-centered space to generate a learning force to meet their own needs and foster career development. The

community members primarily include current students and alumni. One of the authors was invited to join the community to maintain a connection with the students. This author is aware of the need to define her participation as an observer who seldom intervenes in the spontaneous learning activities in which current students and alumni participate. The community uses online technology as an activity system to provide opportunities for increasing student self-directed engagement and collaboration to meet various learning needs (e.g., passing exams and finding employment).

Activity theory indicates that online technology serves as an activity system in which ‘the minimal meaningful context for understanding individual actions’ is an activity (Kuutti, 1996, p. 28). For the sake of analysis, an activity can be analyzed in terms of the elements involving the subject, object, mediating artifacts (signs and tools), community, division of labor and rules (see Figure 1). However, the activity system itself is the fundamental totality that precedes individual elements; none of these elements can be independently distilled from the dynamics of activity. Based on activity theory, an activity begins with a purposeful subject(s); in activity, ‘a live, that is, active relation of the subject to reality is realized’ (Leont’ev, 1981, in Kaptelinin & Nardi, 2006, p. 55). The subject (the community member in this example) is not simply regarded as a passive, cognitive agent; rather, the subject is ‘object-related’ (Engeström, 1999) in the sense of always being involved with the objective of his or her concern. The subject in an activity, or an activity itself, cannot exist without an object. In fact, one author argues that ‘[a]n “objectless” activity is impossible’ (Leont’ev, 1981, in Kaptelinin & Nardi, 2006, p. 55).

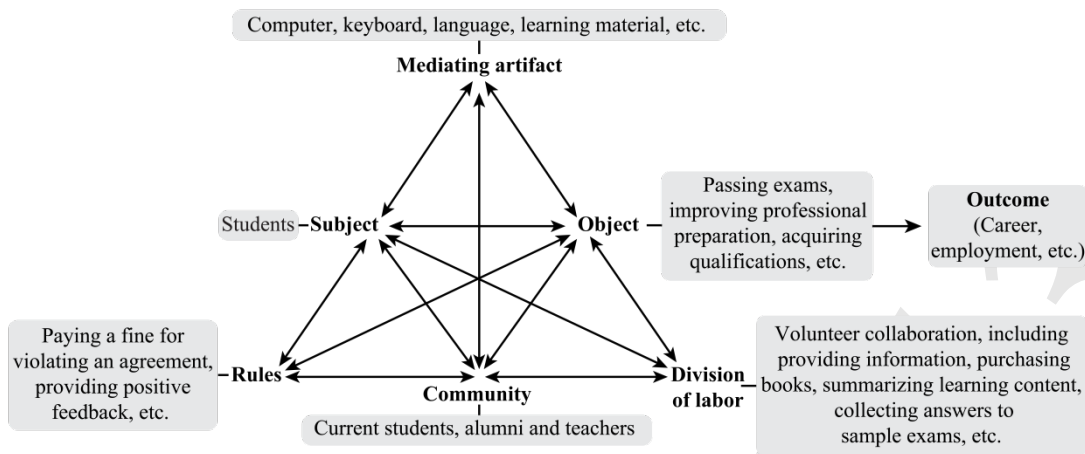


Fig.1. Application of activity analysis to a virtual community as an activity system

An object can be tangible (a material thing) or intangible (an ideal or a plan) (Barthelmeß & Anderson, 2002, p. 15). When the object meets the need of the subject, 'the object becomes a motive and directs the subject's activity' (Dakers, 2011, p. 24). Each subject within a system may have one or more motives (e.g., acquiring various professional certificates and licenses for career development, passing the national teacher certificate exam, finding employment or improving the profession). With this motive in mind, the subject transforms an object into a desired outcome, which motivates the dynamics of an activity.

For Engeström (1999, p. 20), '[h]uman activity is endlessly multifaceted, mobile, and rich in variations of content and form'. In this sense, activities are not undertaken once; rather, activities represent long term, continuous movement and formations (Kuutti, 1996). Activities are conducted during chains of actions, which are realized by a series of operations (Leont'ev, 1978). The level of operations in the example that is presented in this paper includes scrolling through and moving back and forth between website pages and paragraphs. These specific actions are *performed automatically, and the subject need not even think about these processes*. The level of actions in this example refers to the subject's conscious, object-related agency, such as deciding to open a learning file, reading and discussing with other subjects (other members), and providing feedback.

The processes of operations and actions evidence that the subject in the activity system does not have a direct relationship with the object (e.g., preparing for the national teacher certificate exam). The relationship is mediated by artifacts, including signs and tools. The artifacts in this example include both the physical tools (e.g., computer and keyboard) and mental tools (e.g., language and learning material) that are required for thinking and action to achieve the desired outcome. Such an artifact not only 'empowers the subject in the transformation process' but also 'also restricts the interaction to be from the perspective of that particular tool or instrument' (Kuutti, 1996, p. 27).

Technology as the activity system denotes the social collaborative context within which the dynamic, active relationships between the subjects and the object occur. Many subjects in the community are involved in an activity that is mediated by the community, division of labor and rules. According to Engeström (1993, p. 67), the community 'comprises multiple individuals and/or subgroups who share the same general object'. In the system,

'[t]he subject has been changed. It is no longer "me" as an individual' (Engeström, 1999, p. 31). The division of labor 'refers to both the horizontal division of tasks between the members of the community and to the vertical division of power and status'. The division of labor in the community in this example is loose, flexible and reliant on the willingness of students as volunteer participants. For instance, alumni may offer exam experience while current students voluntarily collect key points and learning material for participants who are actively preparing and studying for exams (see Figure 2). Finally, the rules refer 'to the explicit and implicit regulations, norms and conventions that constrain actions and interactions with the activity system'. The explicit regulations in the virtual community, for example, may include paying fines or increased writing practice as a penalty for violating an agreement, whereas the implicit norms may involve student expression of emotions (Roth, 2007) that contribute to sustaining long-term commitment to the activity process (see Figure 3).

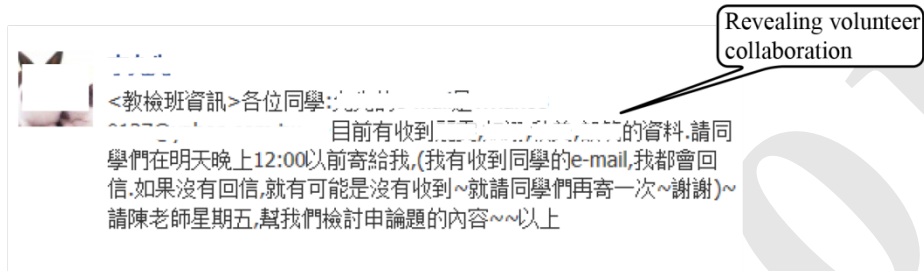


Fig. 2. An example of the division of labor in the virtual community

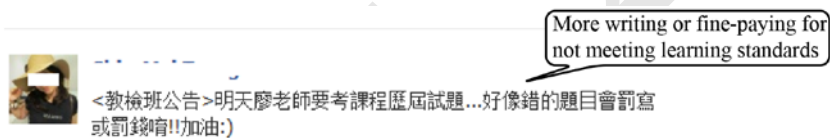


Fig. 3. An example of explicit and implicit rules in the virtual community

The community, the division of labor, the rules and the types of the tools that are used mediate and shape the ways in which the subjects engage in the activity and frame the subjects' knowing, doing and being. The result of subject discussions in the activity process may correct and reconstruct disciplined knowledge instruction (see Figure 4). The subject in the activity system is not viewed simply as a cognitive agent who is reduced to a brain or an internal 'psychic process' (Engeström, 1999). Rather, the subject 'has the capacity to regulate and coordinate his or her behavior' (Bannon, 1995, p. 206) with respect to the activity objective. Figure 5 shows the action that the participants planned to use in taking the exam. The community develops 'a positive emotional climate that embodies qualities of mutual trust, respect, caring, and concern' (McCombs, 1991, p. 123). A subject may express his or her emotional attachment to the community, prompting other subjects to 'express the same emotions, which then gives rise to a sense of solidarity' (Roth, 2007, p. 59). The subjects' sense of solidarity sustains their commitment to the system and encourages long-term learning (see Figure 6).



Fig. 4. An example of an activity system that frames the knowledge construction of the subjects



Fig. 5. An example of an activity system that frames the collective action of the subjects



Fig. 6. An example of an activity system that frames the identity and being of the subjects

4. Conclusions and implications

Using activity theory, this paper has introduced an alternative lens for viewing technology as an activity system that mediates and shapes learner activities. This paper analyses and illustrates the theory in a real context to explain the concept of technology as an activity system. Activity theory avoids underutilization of technology and presents technology as a practice rather than simply as a cognitive tool. Activity theory reveals the technological complexity and dynamics of technology as a live, complex system that enables active learner engagement in activities and authentic learner self-direction to achieve learning goals.

This activity theory analysis of technology presents a number of implications. First, although technology use may not replace conventional classroom lecturing and learning, it is a global primary educational access point and part of the human lifestyle. The integration of technology into educational design can supplement, add value to, enhance and expand the self-directed learning of students. Second, instructors or learning facilitators must realize how technology as an activity system can nurture and optimize students' understanding and actions and can holistically address student needs. Activity theory conceptualizes the student 'as a technologically empowered and socially contextualized subject' (Kaptelinin & Nardi, 2006, p. 199). Conceptualizing technology as an activity system creates a potential for 'learning between users of artefacts' (Bødker & Petersen, 2000, p. 66) and replaces the solitary educational experience. By acting as collaborators, communicators, problem solvers, knowledge integrators and creators, students are active, responsible agents rather than passive agents who receive knowledge (Arievitch, 2007). Third, this paper suggests that technology as an activity system should be incorporated into educational design. The activity theory perspective indicates that student motives must be considered during the development of educational technology for student educational engagement. Students who participate in such a technologically motivated and socially supportive context will develop a sense of mutual belonging and self-significance. Instructors or learning facilitators should consider this support system to maximize educational effectiveness while incorporating technology into educational use and design.

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4th International Conference on New Horizons in Education

Television advertisements as a window on culture for teaching English as a second language

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Abstract

This research examined the viability of using television commercials as supplementary material for teaching English as a second language and how advertising could make lessons culturally relevant, up-to-date and low cost. Connecting language and culture in the classroom can aid non- native speakers in understanding implied and literal meanings. Cultural concepts depicted in a selection from 2,000 television advertisements were measured. Then, relative merits of using TV commercials as teaching tools were evaluated on eight different language populations. Television advertisements were cited as an aid to English language education in speakers of Spanish, Serbian, Chinese, Japanese, Korean, Tagalog, Cebuano, and Chuukese.

Keywords: Advertising, Television Commercials, TV Ads, English as a Second Language, ESL, Culture, teaching material.

1. Introduction

The purpose of this study was to investigate the feasibility of using television advertising, specifically 30-second commercials, as teaching tools for teaching English as a second language (ESL). In addition to investigating commercials themselves, this study examined a model through which the adult educator can select appropriate commercial messages and a system for determining how to best use them.

2. The Cultural Imperative in Teaching English as a Second Language

ESL is taught in countries where English is the dominant language, such as the United States, Canada, and Great Britain. English for speakers of other languages (ESOL), a term that is interchangeable with ESL, focuses on teaching English to students whose native language is not English. English as a foreign language (EFL) is taught in countries where the dominant language is not English. Culture, for purposes of teaching ESL to adults, may be defined as the symbols of expression that individuals, groups, and societies use to make sense of daily life and to articulate their values (Campbell et al., 2006, p. 10). A culture's predominant language is essential in communicating and maintaining its collectively held values, and the mass media are further able to standardize these beliefs. Campbell et al. explain that when we listen to music, read a book, watch television,

or scan the Internet, we are not asking, “Is this art?” but are instead trying to identify or connect with something or someone. Advertising, AKA commercial speech, attempts to motivate people to action by appealing to their values and beliefs. The success or failure of these persuasive messages relies on an advertiser’s ability to make people feel connected with something or someone they value, which varies widely depending on their culture. For example, the Marlboro Man has depicted the American ideal of rugged individualism for decades, but in Japan, he was always riding on a white horse to indicate he was a “gentleman” (Roman & Mass, 1992, p. 121). Hundreds of thousands of adult learners in ESL and EFL classrooms would be well served to have guidance in navigating these cultural differences in meaning.

Teachers of adult students in ESL and EFL classes face a challenge. In an evolving and dynamic language world, they need to keep course work current and culturally relevant (Gardner Flores, 2007, p. 8). The idea that language and culture are bound is a common one (Furstenberg, Levet, English, & Maillet, 2001; Russell, 2000; Sapir, 1949; Greenberg, 1971; Hall, 1959). Not only does an understanding of a culture give the learner a reason to become fluent, it also addresses the fundamental question of meaning, i.e., why words and terms are used the way they are. The Whorfian hypothesis of linguistic relativity simply states that the structure of a culture’s language determines the behavior and habits of thinking in that culture (Littlejohn, 2002, p. 178). The concepts of culture and communication are so tightly woven that it led anthropologist Edward T. Hall to conclude, “Culture is communication and communication is culture” (Hall, 1976).

3. Advertising as a Messenger of Cultural

Saatchi & Saatchi, a global advertising agency network with 140 offices in 76 countries began running a series of advertisements that reflected their research on women’s attitudes toward the agency’s commercials for Kellogg’s Special K cereal. One ad featured a group of men seated in a bar. Worried about their weight, they “resolve” not to let their size define them. One says that he has to accept the fact that he has his mother’s thighs and another asks if his jeans made his “butt look big.” While this was a culture-laden, purposeful attempt to reach out to American women, one could not help but wonder what a non-English speaker would think of it. Is this an example of how American men talk to each other? Is this what they think is important? In the end, the targeted viewers, women, are asked why they obsess over these things when men do not. Sensible eating, of Special K cereal, is offered as a solution.

This type of multi-layered message is common in television advertising and this particular example was a joke on men and on advertising itself. It also pointed out a common obsession of American women and did it in a way that made it all seem laughable. The inside joke, as evident here, is a way to bond with the audience. The idea is that, if the sender and receiver of the message see the same irony, the receiver must think the same way on other things. As Hall explained it, this kind of messaging is “about you and me in a highly personal way” (Hall, 1969, p. 33). In the advertising profession, this translates to: I get the joke, I see the point, I understand the irony; therefore, I am part of an elite group; I am on your side. The intent being for the consumer to ultimately ask, “Where do I buy your product?”

Since culture is a social construct that involves our emotions and feelings (Martin & Nakayama, 2007), there are many types of subtleties present in television commercials that could easily be misunderstood by non-native speakers. We expect the content of culture to have clear parallels with the content of language, which is a kind of cultural system in itself (Goodenough, 1981, p. 67). So, in considering the content of culture, we must take account of an entire range of phenomena that enter the human experience and that are

the subject matter of learning. According to Goodenough, these phenomena are central to advertising disseminated through television commercials.

While advertising messages like Saatchi & Saatchi's Special K commercial are rich in examples of culture, and could be very useful as teaching tools for adult ESL or EFL students, the review of literature reveals advertising has been largely overlooked as a teaching tool.

Not only could television advertising serve as a window on culture, it could be used to teach syntax, phonology and morphology, as well as pronunciation, intonation, and emphasis. The repetitive nature of TV commercials, along with the aforementioned desire of the advertiser to make a meaningful "connection" with the viewer, serves to make commercials excellent resources for the ESL educator. Although we can study permanent cultural forms, such as novels or songs from various historical periods, culture is always changing (Campbell, Martin, and Fabos, 2006, p. 10). Culture may be defined as the symbols of expression that individuals, groups, and societies use to make sense of daily life ... when we watch television we are trying to identify or connect with something or someone. Culture, according to Campbell et al., delivers the values of a society through products, namely the mass media.

4. Discussion

The methodology for this research used elements from several different qualitative research systems. It was a twofold approach that first centered on the collection and treatment of the commercials sampled for later use in the study, and second, dealt with the creation and evaluation of a suite of teaching materials used by ESL teachers in the classroom and a system to measure the value of commercials in teaching the class.

This study investigated the following research questions:

1. What, if any, elements of culture do television commercial messages contain?
2. If television commercials do contain culture, can they be used to teach English to adults who are learning it as a second language?
3. Do participants report commercial messages used as a teaching tool to be an effective addition to their program?

5. Looking for Cultural Content in Television Advertising

This phase of the study relied on content analysis to examine television commercials. Berger (1998) stated that content analysis is useful in making inferences about people indirectly, and is helpful in determining any interesting changes that may have occurred over the years. Content analysis is also an unobtrusive means of studying media and therefore, advertising messages. There were two main characteristics that made this aspect of the study a qualitative content analysis rather than a quantitative analysis or cultural criticism:

1. The use of qualitative assessment in the coding process; connotative vs. denotative content categories (i.e., what constitutes *culture* to be counted and what are the observable characteristics that manifest that concept.)
2. The use of qualitative assessment, or inference, in the analysis of the findings (i.e., attempting to answer the broader “So what?” question). Construct validity (Frey, Botan, Friedman, & Kreps, 1992, p. 197) was attempted by developing content categories on the basis of other similar studies (Signorielli, 1989; Hall, 1959).

Central to the analysis was Hall’s (1959) *Map of Culture*, which he referred to as a by-product of his study of “culture as communication” (p. 171). This grid (Table 1) of 100 components of culture allowed raters in this study to put a numerical identifier on concepts they observed in the sample commercials. The volunteer raters, all of whom were adult college students majoring in communication, spent some time familiarizing themselves with the *Map*, and were then able to spot and identify many different cultural concepts in the a subset of 25 randomly selected commercials. These advertising messages were part of a collection of 2,000 randomly recorded over a month-long period.

The use of non-specialist observer/raters helped add a level of objectivity to the study. These individuals, with limited knowledge of anthropology or sociology, tended not to bring preconceived notions of culture to the study. Hall himself explained that the *Map of Culture* “satisfied a demand for specificity, concreteness and teach ability,” saying that he created it “to enlighten the non-specialist interested in cross-cultural work as to the nature of culture, and to stimulate students to further work” (p. 176).

Two separate groups of observer/raters examined cultural content information in the commercials and a selection of these was ultimately used to create the discussion guide for use by ESL instructors. These example commercials were edited onto a DVD as part of a suite of discussion materials used in the ESL classrooms. Information from the raters’ analyses was also used to create appropriate survey questions to survey the adult educators and students who used the classroom exercises.

These observer/raters investigated what, if any, elements of culture television commercial messages contain. The researcher hypothesized that they do. A group of volunteer raters, after watching each of 50 commercials presented, indicated that they do contain elements of American culture. Employing a grid of 100 different cultural elements yielded several that were more common, but most of the commercials viewed appeared to contain several different elements. While the raters were not always in complete agreement, there was enough consistency that the researcher could infer a high likelihood that, even when chosen at random, television commercials would have observable elements of culture.

6. Testing Television Commercials as a Teaching Tool

The second phase of the study included the creation of a suite of teaching materials for ESL classes. Each class received a DVD with 25 television commercials (12.5 minutes of video). The ESL students watched the video, paused after each 30-second spot, and engaged in a short discussion about the content. Once they had seen all the commercials, the teacher asked them to fill out a survey that was provided. After the lesson, students were asked to pay attention to some TV commercials at home and be ready to talk about one at the next class. Teachers themselves answered a separate evaluation survey and were give a follow-up interview about the class on a later date.

In an effort to assure the symbiosis between entertainment and education, the researcher screened for messages with consistently high production values (better filming, editing, acting and scenic work) by limiting the selection to randomly chosen nationally distributed commercials. It should be noted that, to serve as a discussion model for ESL classes on a week-by-week basis, it is also mandatory that messages repeat often enough that there is a high likelihood that student and instructor will see them. Materials created for use in the classroom included a discussion model with a pretest component, a video of the selected TV commercials, a Q&A format follow-up discussion guide, and a post-test measurement instrument.

The researcher conducted a pilot test of the lesson and observed the effectiveness of the lesson. All classes were later analyzed with teacher/student testing and ESL teachers involved in the test were surveyed on the feasibility of using television commercials as a teaching tool. Teachers were asked to address such issues as logistics, interest-level on the part individual students, content, and cultural relevance.

7. Conclusion

The two separate groups of observer/raters examined 50 television advertising messages and reported that cultural content was very evident. They noted that the “slice-of-life” style, in particular, infused cultural content into many of the commercials. While the sample of advertising messages used for this research were from American television, and in no way represented a full spectrum of culture from other English speaking countries, it did contain a number of concepts that teachers reported as useful in ESL teaching.

Ultimately, seven classes in Hawai‘i and Kansas were tested with the TV-commercial lesson. Native speakers of eight different languages and seven language families (Figure 1) returned similar results. Those results were that students and teachers reported generally positive attitudes toward the concept and said they had indeed learned about, in this case American culture, by watching and discussing the commercials (Figure 2) something.

Television commercials include visual content like body language, proxemics, gender and age relationships, as well as auditory content like tone, emphasis and volume. This makes television advertising particularly rich sources of information on these aspects of language.

Teachers reported using a variety of materials to supplement lessons (Figure 3) and did mention televised movies and books as useful. Unlike movies and books, television commercials are, by their very nature, current. A typical television commercial is seldom even available to the audience for more than a few months. Often the time in circulation is less. This short “shelf life” means that these advertising messages are on the cutting edge, from a cultural point of view. Words and phrases used in television commercials are likely to contain the latest jargon, not dated phrases that may have already become passé in the vernacular. Teachers who incorporate television commercials into their ESL or EFL curriculum will be helping their students pick up on the most recent evolution of culture and the words, phrases and gestures that frame it in that particular English speaking society.

The fact that television commercials repeat on a regular basis during the time they are available is another plus. As discussed earlier, students can see a message on television, discuss it in class the next day, and then see it again that night. It is an endless source of new material, but there is enough repetition of existing messages to reinforce teaching points.

A final reason to incorporate television commercials into the ESL classes is that it would present teachers with an opportunity to discuss issues like consumerism in society, body image and ageism. While these were not specifically tested for in this research, they did come up in class discussion during the study. Awareness of these influences would be particularly helpful to younger students.

This research helped show that television commercials could contribute positively to the teaching of English as a second language. Their ubiquitous presence, the emotional connections they make and their constantly changing content all work to make them a rich source of new material for educators. They offer a low-cost way to provide up-to-date, ever changing discussion aids. Considering that most ESL programs are “cash strapped” (Griffith & Hancock, 2006) and the learners themselves are often from low-income status, this could be a true benefit to the field.

8. Further Research

While this study demonstrated a value in using television advertising as an English language- teaching tool, further research could benefit the field. A control group and several treatment groups, provided with tests of cultural literacy, could produce additional validation that learning had, indeed, taken place. Since the learning outcomes in this study were self-reported, the researcher must take the respondents at their word that they actually added knowledge through the process. Also, since the experimental groups were all ESL classes on mainland USA or Hawaiian environments, a replicated study with EFL classes conducted in non-English speaking countries would add an extra layer of meaning to the results.

4thInternational Conference on New Horizons in Education

The views of special education teachers about mathematics instruction in special education

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Abstract

The purpose of this research to determine the special education teachers' views about mathematics and mathematics teaching methods using in special education. For this purpose, a semi-structured interview form was prepared to be able to interview with the special education teachers teaching mathematics. The participants of the study are four teachers who graduated and non-graduate from the field of mental retardation. The method used in the research is qualitative research approach. The research was designed as a case study in qualitative research methods. In this research, data obtained from interviews, document review and thinking aloud. Content analysis was used to analyze the data. The data are presented in comparison recommendations are given for the future. The result of the research was represented in comparison and provided practical suggestions for the future. And also the results will be pathfinder for a project that will apply to teacher in Denizli in Turkiye.

Keywords: Special Education, Special Education Teachers, Mathematics Instruction, Teaching Methods

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Main objective of the special education is to prepare the students for life and enable them to live in society independently. For this purpose, students in special need are thought self-maintenance, daily life skills, social and communication abilities. Besides these skills, it is required that students with intellectual disabilities must gain academic skills, too (Eripek, 1996). Among these academic skills, numeracy such as counting, using numbers, money concept, controlling the money, shopping, telling the time, recognizing the shapes, solving the problems requiring four operations are very important and prior condition for the individual to live independently. For this reason students with intellectual disabilities have to learn numeracy, adapt these mathematical skills to daily life and be the member of the society by solving problems like every other student.

Mathematics skills, while very important prior condition for the students with intellectual disabilities to proceed in academic life, daily life, vocational field, is the leading skill which students with intellectual disabilities have difficulty to understand (Kroesbergen & Van Luit, 2003; Perie et al., 2005). This problem is multiplied by the factors. These factors are especially about mathematics skills which requires cognitive skills, difficulties in literacy, not allowing enough time teaching concepts, not providing students with enough opportunities, mathematic in volute and low motivation of the students (Vaughn et al., 2003).

Along with all these reasons, Cawley (1978) shows the reason of not being able to gather mathematics skills for the students with intellectual disabilities that course materials are not prepared according to the needs of the students and concepts and skills are not presented in a systematic way. At the same time, especially in 1990's such an opinion gained importance that students in effective education can learn mathematical skills and concepts in a shorter time period and can use the things they learn in life. Together with this opinion, it is stated that difficulties in Maths don't stem from them but about preparing and presenting the course materials (Jones et al., 1997).

According to this, some facts make the students have difficulties to learn new concepts and skills in Maths. These can be stated as programmes aren't convenient for the needs of the students, teaching activities aren't according to the performance of the students, concepts and skills are presented without analysing, physical materials are not used, egzercises, practices and correcting aren't done (Gürsel, 2000).

Because of this the individuals with intellectual disability don't have enough ability to learn by themselves. In learning mathematical skills the most important factor is to teach effectively and efficiently.

Without doubt teachers are the most important element of effective and efficient education. Students with intellectual disability are usually unsuccessful to learn in traditional ways. Teachers are required to be sufficient for addressing their students (Flores ve diğerleri, 2010). Also National Council of Teachers of Mathematics (NCTM) and such associations has defined standarts that Maths teachers have to have. When looked at literature, there are some studies about knowledge of content, belief, attitude and proficiency for this standarts of teachers of special education in mathematics. According to the data gathered from these studies, speacial education teachers don't have enough knowledge in mathematical content, their anxiety level for teaching Maths is high and they don't see themselves sufficient in teaching Maths (Ball, 1990; Hinton, 2011, Lee, 2011, Flores and the others, 2010; Gerretson & McHatton, 2012; Floyd, 2006; Bursal & Paznokas, 2006). Also, it is stated that according to the standarts of National Council of Teachers of Mathematics these teachers are not adequate (Maccini & Gagnon, 2002; Floyd, 2006, Hinton, 2011) and they are unwilling to obey the reforms (Hofmeister, 1993; Rivera, 1997; Simon & Rivera, 2007).

Another point stated by researches is the relationship between teacher adequacy and student success (NMAP, 2008; Lee, 2011). The more teacher is equipped about the field, the more the students are academically successful. Even if there are many reasons for that, the most important one is that teacher having good content knowledge can plan well what and how to teach (Ball, 1990; Ma, 1999). It is thought that even the students

showing normal improvement have difficulties in mathematics skills. So students with intellectual disabilities need additional help. That's why teachers are expected to plan the educational content for fulfilling the needs of the students best and to present by choosing the best teaching method (Krosbergen & Van Luit, 2003). In this context it is important that mathematics is taught by efficient techniques which leads mathematics instruction to function (Tekin-İftar, Kurt & Acar, 2008).

Today many studies are publishing about teaching mathematics instruction to the students with intellectual disabilities and also effective, secure and systematic teaching methods are still being looked for. In these studies, in teaching Maths direct, staggered, through concrete to abstract, accurate and to the point teaching methods have become prominent.

However when it is looked at literature, it is seen that special education teachers don't prefer to use the practices proved to be effective and efficient (Lee, 2011). Also (Boardman et al., 2005) stated that teachers don't use systematic methods and choose more flexible ones. Besides this, Woodward & Montague (2002) and Miller & Mercer (1993) stated that teachers focus on proceeding rather than focusing on conceptual understanding among the students with intellectual disabilities.

Data from researches shows that teachers have problems during the process of teaching numeracy to the students with intellectual disabilities. Because of this special education teachers need more researches in teaching numeracy. Also especially in Turkey there is no study showing the results of appointing classroom teachers as special education teachers by giving classroom teachers certificate to fulfill teacher shortage. From this point of view, studies defining teaching the methods of numeracy are needed for the special education teachers who didn't study in special education.

The aim of this study is to state the perspectives of special education teachers for teaching numeracy. For this reason questions below are sought to be answered.

1. What are the views of the special education teachers about the importance of teaching Maths?
2. What are the views of the special education teachers about the attitude of family and student during the process of teaching Maths?
3. What are the views of the special education teachers about teaching methods based on science during the process of teaching Maths?
4. What are differences among views of the special education teachers about being graduate of special education?

2. Method

In this research, qualitative research approach is used as the method. The research is designed as a case study.

2.1. Participants

Four special education teacher have attended the research from a private school. Participants are volunteers. Two of them graduated of the special education and the other two graduated of primary school teacher working as special education teacher.

2.2. Data collection tools

In the research, for data collection semi-structured interview forms are used. Form is designed by pilot study and prepared by expert consultation. In the form there are 15 main questions and according to the answers sub-questions support the interview. Interviews are recorded by getting the necessary permits then put in order. In the research document examination and thinking aloud technique are used.

2.2. Data analysis

Data is analysed by using content analysis method according to the research questions.

3. Findings

Here data, obtained by answers to 15 questions their sub-questions, is classified and sub-divided according to aims of the study.

3.1. Views of the special education teachers for the importance of the Maths teaching

In the interview, teachers generally have given positive answers for the importance of the Maths teaching. They stated especially that numeracy is the prior condition of the Daily life skills and numeracy has to be used in everyday life. Some parts of the teachers' answers are like these:

“Kids have to express things and numbers everyday, when she goes to convenience store, they have to state the number of the things bought, when she gets on the minibüs or bus, they have to learn the number of it” (Teacher 1).

“When upper classes graduate, they take the exam for disabled officer. It is very important here” (T 1).

“It is something she can use in daily life. In a supermarket, all in all, to do something for her/his own, it is a valid reason which they already use. We say go buy something from the canteen and they can” (T 2).

“Numeracy is as important as self-care skill. However, gathering self-care is quite important (T 3).

“For example she has to know money, numbers, add-subtract, things which will be used in daily life. These are very important for mentally disabled. we have to teach these” (T 4).

3.2. Views of the special education teachers about the attitude of family during the process of teaching Maths

In the interviews it is stated that especially families having self-care skills have positive attitudes for numeracy education. But it is underlined that families' demands for numeracy education are less when compared to others. Some of the answers are like these:

“We have feedbacks from families especially when they use Math” (T 1).

“Families' demands for self-care skills and housework skills are prior” (T 2).

“Constantly they come and ask what can we do at home. (T 3)”

“The parent of the students with high IQ level gives more importance to Math instruction.” (T 4).

3.3. Views of the special education teachers about the attitude of student during the process of teaching maths

Teachers generally stated that students are in positive attitude for Maths and studying Maths is more preferred compared to literacy. Some parts of the answers are like these:

“Generally they are positive. For example in Maths there are 10 numbers, but in Turkish there are 29 letters so Maths is more fun” (T 1)

“They like practising it because it is not oral and no need for memorizing” (T 2)

“They love Maths very much” (T 3).

3.4. Views of the special education teachers about teaching methods

In the interview teachers were asked questions about practices which were proved to be effective and efficient by researches from literature and based on science. Firstly they are asked about their teaching methods and which method they use most.

According to this, graduates from special education have more awareness for evidence based methods, other teachers aren't graduates of special education don't have a view about these methods at first side. Also the most used teaching method is concretisation by using materials. And also a teacher stated that direct teaching is being used, other three participants emphasize on setting example method. Some parts of the answers are like these:

"We don't use a method mainly, I am using direct education. With these I am using simultaneous method most and also constant time delay procedure. I don't use the others much. (T 1) "

"I generally prefer using material"(T 2)"

"I am demonstrating first and then make them apply. Generally I am using concretization method" (T 3)

"I don't have such a special method. I am working with students face to face. First we are doing together by demonstrating. I am giving oral clues" (T 4)

To the questions as according to what they choose such methods, they stated that they choose the method according to skill's and student's features. Some parts of the answers are like these:

"Firstly we are looking for if they are available for concretization." (T 1)

"Student's readiness and how much they know is important" (T 2)

Also when teachers are asked for examples of the activities done through these methods, first teacher stated that addition process is done through direct teaching and simultaneous teaching, second teacher mentioned that setting an example by giving clue is used as prerequisite skills are important. Third teacher stated that subtraction process is done by using material, fourth teacher stated that to study a skill it is important to study prerequisite skills first. Teachers especially mentioned concretization activities and doing by demonstrating. Also their common point is to agree on the counting technique in addition. Also in this process giving clues is very important. Some of the answers are like these:

"In rhythmic counting when we do counting through direct teaching, we can draw pictures on the board, and we can count these pictures." (T 1)

"In addition firstly I mention quantity factors of course then I do it myself and then I ask. If the student is not able to do it, I give clue, then I ask again, if unsuccessful again, I help the student."(T 2)

"For example, in abstraction firstly, I do backwards counting. I do this by making them subtract. I put ten pencils then I do by making them subtract."(T 3)

"For example eight plus five, student can do it by drawing lines, for example it is five student draws five, it is three student draws threes. Then student can add by counting these."(T 4)

Also in the interview teachers are asked some questions about teaching methods which are from literature and proved to be effective and efficient (Direct teaching, accurate teaching, through concrete to abstract teaching, staggered teaching, to the point teaching). The teachers were asked whether they use these or not. According to these first teacher who is graduate of the special education answered the questions concerning direct teaching

and simultaneous education especially as yes. This teacher said that she only use the concretization part of through concrete to abstract teaching and doesn't know much about this technique. Teacher stated that because staggered teaching method requires preparation and it is long she is not able to use it. Also she mentioned that she never uses to the point teaching and she doesn't know this teaching method.

"I use direct teaching often" (T 1)

"I prefer simultaneous teaching." (T 1)

Again the second teacher who is graduate of the special education stated that she doesn't use direct teaching method and especially prefer simultaneous teaching method. This teacher doesn't prefer using staggered teaching method as the class is crowded. This teacher use through concrete to abstract teaching on for concretization, and doesn't know as a evidence based method, as for he to the point teaching this teacher doesn't know about it.

"I don't use direct teaching." (T 2)

"I am using as concretization but I don't use any evidence based methods. I do concretization by using materials." (T 2)

Third teacher who is graduate of special education stated that teacher doesn't know teaching methods fully. Teacher said that she can guess the teaching methods of direct teaching and through concrete to abstract teaching by their names .

"Direct teaching method? I don't know." (T 2)

"I don't know its stages much. I don't do it by plan also we don't have much time." (T 2)

Fourth teacher who isn't graduate of special education stated that she heard staggered teaching method only. When these methods were shortly mentioned, Interviewer stated that she uses some of them but they aren't based on evidence. As for staggered teaching method , teacher mentioned that she uses it but doesn't have detailed knowledge.

As for the direct teaching method: *"our practices can be included to that." (T 4)*

As for to the point teaching method : *"I got it, we use that but not consciously. But I am not using this method like this." (T 4)*

As for the staggered teaching method : *"Yes I use this method. At the end , when the student did , liberalize them." (T 4)*

4. Argument ve Result

In the study, in the light of the questions asked to the teachers, it is determined that special education teachers are positive as for the importance of the teaching Maths on the contrary to findings that are in literature. This positive opinion is expressed by especially by the students with mild intellectual disabilities and their families. These findings don't show consistency with the findings about special education teachers have the negative attitude about teaching Maths in literature (Ball, 1990; Hinton, 2011; Lee, 2011, Colman, Flores and the others, 2010; Gerretson & McHatton, 2012; Floyd, 2006; Bursal & Paznokas). Also teachers stated that it is very important to teach counting, four operations and money-shopping in numeracy which is one of the aims of the special education and this shows consistency with the principle of living independently in life.

In the study when we look at the teachers' views about teaching methods based on literature, the findings are quite important. According to this the graduate students from this field are generally aware of the evidence based applications in teaching Maths even if it is less. However, teachers who aren't graduates of special education don't have any view about the evidence based teaching methods, it is quite worrying. These mentioned findings seem to support the findings of the literature that special education teachers are unwilling to apply evidence based methods (Lee, 2011; Boardman et al., 2005; Maccini, Gagnon, & Calvin, 2002).

Another important point about applying the evidence based teaching methods is that teachers don't plan their methods, which they already use, systematically, more than that they do it extemporally when they go in the class. This situation can result in either unsuccessful education or have the risks of failure about continuance and generalization. Also another important point gathered from interviews teachers don't have a full command of the teaching method they use. In this situation we have some examples to prove this finding, as the examples of the staggered teaching methods, direct teaching and through concrete to abstract teaching are not fully used but only one stage of the teaching method is used. Modelling and doing together teaching methods are used but teacher didn't hear about direct teaching method. Another example is that teacher use the concretization teaching method however teacher hasn't heard about through concrete to abstract teaching and doesn't use it. In fact teaching methods are more effective when they are planned systematically before the lesson according to the needs of the students and applied stage by stage after the aim of every stage is provided, next is applied. These findings show consistency with the views of the literature about the application of the evidence based teaching methods. These views tell us that they are deficient. (Boardman et al., 2005; Lee, 2011; Maccini, Gagnon, & Calvin, 2002).

"Do you feel yourself qualified in teaching Maths?" is the most important question in the research intended to its aim. Participants commonly answered "No". Apart from this sub question is "would you like to attend an in-service course about teaching Maths?" and this question is answered as "Of course, Yes". This view shows consistency with the idea from the literature that teachers don't feel themselves enough about teaching Maths.

In the light of these findings more research should be done and according to the results of research, decisions should be taken about employing the not-graduate of special education and also this should be discussed. If that is necessary with the in-service courses containing Math instruction, teachers should be equipped more. Especially in the process of training the teacher, teacher candidate should be aimed to have more content and pedagogical content knowledge. Especially because teachers need special treatment to teach mathematics skills to the students with intellectual disabilities. Teachers who are not the graduates of special education should take the in-service course more seriously about teaching Maths, if that is necessary experts' help should be provided.

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The Academic Tutoring at the University Level: development and promotion methodology trough project work

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Abstract

Tutoring is a methodological element of utmost importance in the EHEA (European Higher Education Area) context. Academic tutoring at university-level must offer counselling and technical support to university students in the three following areas: academic, professional and personal. This contributes to the students' integral development through their university years. Nevertheless, its potential is very often overshadowed due to the general lack of awareness (here we must place responsibility on the teacher-student relationship) of its methodological function in the teaching proposal required by the EHEA, whose organizational model is focused on the acquisition of competencies. A Formative Assessment applied model in university subjects, in which the teacher becomes tutor of autonomous work groups and that proposes the use of well-organised academic tutoring sessions, is proposed on this contribution. The result, after introducing this model in the classroom, is very positive in several aspects, since it contributes to the development of instrumental, interpersonal and systematic competencies. Moreover, there is a very favourable improvement of the use of tutoring sessions as far as students are concerned, which will be of advantage to their teaching-learning process.

Keywords: tutoring; project work; formative assessment; portfolio; rubric.

1. Introduction

1.1. Question posed and contextualization of the problem

Tutoring is a methodological teaching tool with great potential within the new EHEA context. According to Ferrer (2003) 'tutoring is a training activity that has an impact on the holistic development of university students in their intellectual, academic, professional and personal dimension. In other terms, it can be said that it is the teacher-tutor activity aimed at favouring a permanent maturation process, through which university students manage to obtain and process correct information about themselves and their environment, within intentional proposals of reasoned decision making: to integrate the constellation of factors shaping their life-course; to fix their self-image through life-course experiences in general and tasks in particular, to display the precise abilities and attitudes in order to integrate work inside a global life project.'

As reflected above, tutoring is a more complex process than a 'doubt solving' activity as understood hitherto. The concept of tutoring is in itself an inclusive global process that it is not reduced to 'office hours'. According to Rufino Cano's words (2009): tutoring reappears adopting a clear, renewed goal stated in terms of unified criteria and more complex actions in an attempt to improve university teaching quality; to deeply

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transform the procedures centred on students' learning, so as to provide them as complete a training as possible through their university experience; and, of course, to favour their entering the professional world from the platform of an organizational model of university counselling and formally institutional tutorial action. Therefore, it is understood as an institutionally standardized teaching activity and inherently linked and integrated in the teaching practice of all teachers and to the performance of their duties, as the closest level to students, from a multidimensional perspective.

In general terms, three great tutorial spheres or areas are defined (Rufino Cano (2009)):

- Vocational counselling (transition from college to university)
- Academic tutoring at the university level (teaching and research)
- Career mentoring and counselling (professional world)

These three tutorial areas must be enhanced to the extent possible. This paper expects to offer an alternative to favour academic tutoring through a new methodology based on group-work research projects.

1.2. Question posed and contextualization of the problem

Though a correct tutoring offer implies the development, put into practice and follow-up of an integral tutorial planning as well as a of a support plan for academic, professional and personal development of all students with no exceptions. It is also true that small actions of redirecting the teacher-student relationship may contribute to obtain better results on these plans. Thus, this paper expects to prove that, by means of a methodology based on the tutoring of research works carried out in work groups, it is possible to encourage students' awareness that in the future they must look at a teacher's role not in terms of a mere purveyor of knowledge, but in terms of a guide and a source for learning. With the methodology put into operation in this paper, it is concluded that students have shown an attitudinal change towards their relationship with the teacher, the use of the academic tutoring has been promoted and, most importantly, a noticeably dialogical, reflective relationship has been generated between the teacher-tutor and the students.

2. Methodology

2.1. Context and participants description

The tutoring methodology proposed here has been put into practice in two subjects of the Faculty of Science at the University of Alicante taught by the author of this paper. In particular, the participants have been students from the 'Introduction to Materials Science' subject, a third-year subject of the Chemistry Science Degree, and from the 'Solid-state Chemistry' subject of the Master's Degree in Nanoscience and Nanotechnology. Due to the excellent results obtained, it is intended to be used in future subjects of the Chemistry Degree and in subjects of the Master's Degree in Materials Science and the Master's Degree in Nanoscience and Nanotechnology. Both the development of the work and the conclusions derived from it are the result of working with students from different years during two consecutive academic years (2009-2010 and 2010-2011).

The students participating in this experience have been, therefore, undergraduate students in the middle of their academic maturation period and students who have already finished their curriculum. In both cases, the initial disposition has been the same and both groups have considered the exercise to be very positive for their training.

2.2. Materials

In general, no special materials are required. The following materials have been used for the development of the exercise proposed: i) for the classroom work: a projector and a traditional blackboard, besides the U layout of the tables for a better teacher-student approach; ii) for the work at home: a computer.

2.3. Instruments

The instruments used for the accomplishment of this project have been very much welcomed by the students, who had never had previous experience with them. These instruments are the following:

- **Learning agreement:** the learning agreement developed is a mutual contract between teacher and students in which the codes regulating the behaviors, interactions and relationship between both sides of the teaching-learning process are explicitly made known in writing. The contract version chosen has been a group contract (the contract is signed by a whole group and not only by one student); this way, a clear cooperative learning objective is set from the beginning and the use of individualist learning strategies is prevented. The objective of this agreement is to direct students' independent work or work at home promoting their autonomy and their learning to learn competency.
- **Portfolio:** the portfolio consists of a document in which all the output made by the student and the teacher is collected. It is through that output that competencies can be judged in the context of a discipline or an area of study. The group portfolio informs of the evolutionary process followed by the group, allowing the group itself and the teacher to see the achievements with regard to the learning objectives and to the assessment criteria previously established on the learning agreement. Therefore, it is 'a dynamic process through which teachers and/or students gather the data resulting from their work and professional and academic development respectively, organized by themselves on the basis of reflexion, discussion and consensus with other colleagues and the author-advisor of the process' (Lyons (2006)). The portfolio format used can be seen on the Annex.
- **Rubric:** This has been the instrument used for the assessment of the accomplishments achieved by the different groups (a group rubric has been used) and by the different students (an individual rubric has been used as well). Rubrics are measuring instruments, in which criteria and standards are established for levels through the layout of scales, and that allow determining the quality of the students' execution in specific tasks. The most important advantages of using this tool quoted in Frade (2009), Martínez-Rojas (2008), Capote and Sosa (2006) are, among others, the following: a) students assessment is more objective, since the measuring criteria are clear and known in advance; b) it clarifies the learning objectives and the means to achieve them; c) it provides students with feedback on their strengths and weaknesses on those areas they need to improve; d) it helps to maintain the achievements of the learning objective focused on the established standards of performance and on the students' work.

2.4. Procedures

An action strategy has been followed for the development of two very important aspects in the teaching-learning process within the context of Higher Education: a) group work; and b) project work. In order to develop these objectives, a plan of action of academic tutoring has been planned. In the aforementioned plan, judging by the results obtained, students have evaluated their academic and personal development very positively and have learnt to 'use' tutoring sessions as a methodological element of special importance in their path as protagonists of their own learning process. The procedure followed is now explained. The subjects in which this experience has

been put into practice have a common thematic content, which is the materials science and the solid state or condensed matter. All of them share a 'Characterization Techniques' thematic cluster in which they must develop the different techniques to obtain characterization information of the different solid materials presented throughout the academic year. The experience lies in proposing a tutorial action planning to guide students in the development of the aforesaid thematic cluster by means of research works. To this end, the first task has been to explain the activity to the students and to read them a proposal for a learning agreement, as well as to inform them of the monitoring of their work through a portfolio and of the existence of a rubric as an assessment element (not only with grading purposes) of their work throughout time. Reached a consensus, the class has been divided into work groups, as proposed by the students themselves, so that each group is composed of five members. Therefore, five research works have been proposed. Once known the groups and the research work proposals, each group must be assigned a research work. It is advisable that this task is done in a comfortable, dialogical climate in which all different groups can reach an agreement between them and with the teacher in order to reach a general consensus.

Research works entail face-to-face activities and activities to do at home. The idea is that students can develop a lesson of Characterization Techniques by means of group work and present the topic on the last session of a series of six sessions. The work at home will consist of developing the different aspects of the research work that have been established in the portfolio. This work will be guided by means of five tutoring sessions with all different groups in the classroom. Each student will play a different role in every session and will provide whatever required depending on the role play in each session. All five roles to be assumed by the students in their groups (coordinator, secretary, person in charge, assistant and spokesperson) are taken into account on the portfolio, in which it is depicted the rotation of roles for each students in the group (each students is identified with a number from 1 to 5). Thus, the student whose number is number 1 will play the role of coordinator on the first session, of secretary on the second session and so on. The role for each one is specified on the students' portfolio. So that the portfolio can be revised by the teacher on a regular basis and the members of the group can receive feedback of their work and progress, it was decided to use a digital format with free access for the teacher by using the Virtual Campus (a computer tool on the University of Alicante website that allows the exchange of information between teacher and students). Therefore, the portfolio will have notes both from the students and the teacher, thus becoming an actual work and assessment tool. There are sections of the portfolio to be filled in by the teacher, some others to be filled in by students and some others, as in the case of the assessment questionnaires that must be filled in by each group member.

After the five sessions of tutored work, on the sixth session each group must present their work, in a free format, in front of the teacher and the other groups for a maximum time of 25 minutes, so the main contents are summarized. Moreover, each group must explain both the members' and the group's progress. During this session the members of each group must undertake the role of speaker.

3. Results

Generally speaking, the experience has been very positive. Students have handed out the portfolios and have defended their works orally in conformity with the teaching-learning agreement previously signed. In the explanations of their progress, they have shown great optimism towards this activity.

The assessment questionnaires have provided by the students, as well as some of the teacher's records, are summarized in the graphics below. The graphics gather different opinions from students of all groups (regardless their subject or year) that have taken part in this activity.

- To the question 'Group work is...' (Attitudinal self-assessment), students have answered:

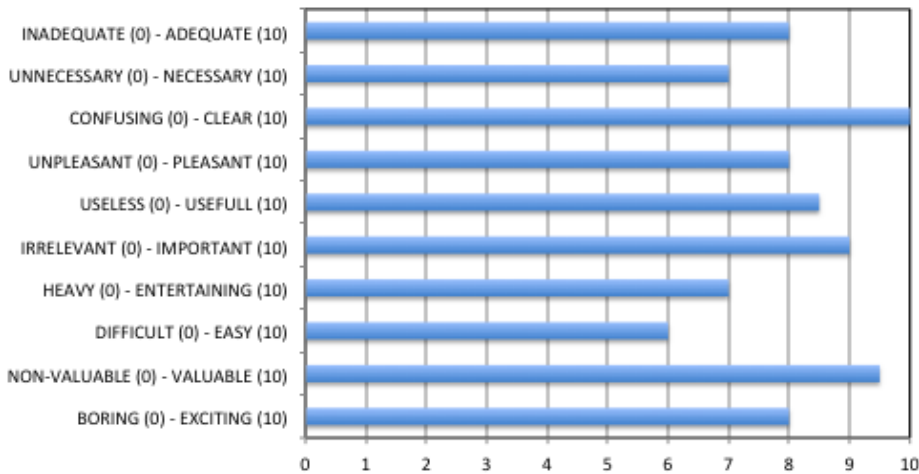


Fig. 1. Results of the students' attitudinal self-assessment questionnaire in response to the question 'Group work is...'

- To the question 'My behaviour while doing the research and on the oral presentation has been...' (behavioural self-assessment), students have answered:

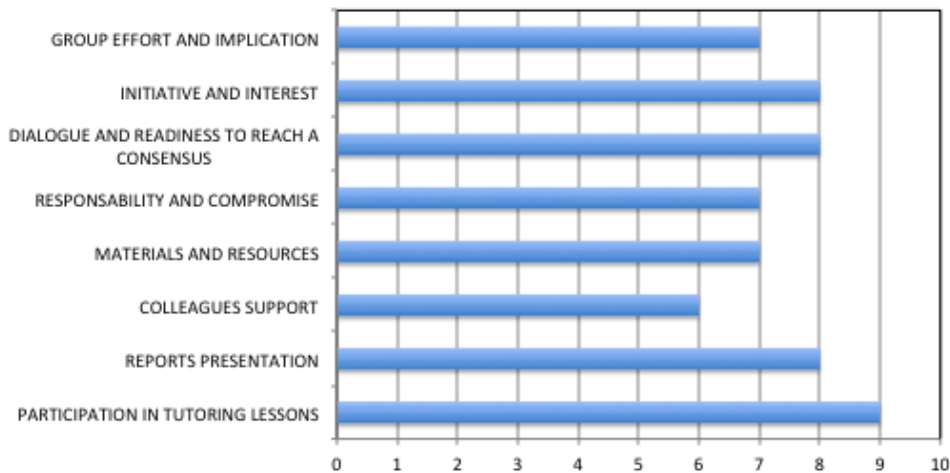


Fig. 2. Results of the students' behavioural self-assessment questionnaire in response to the question 'My behaviour while doing the research and on the oral presentation has been...'

- The record (number) of the 'extra' tutoring sessions (apart from the 6 suggested sessions for work development) gathered by the teacher are summarized below:

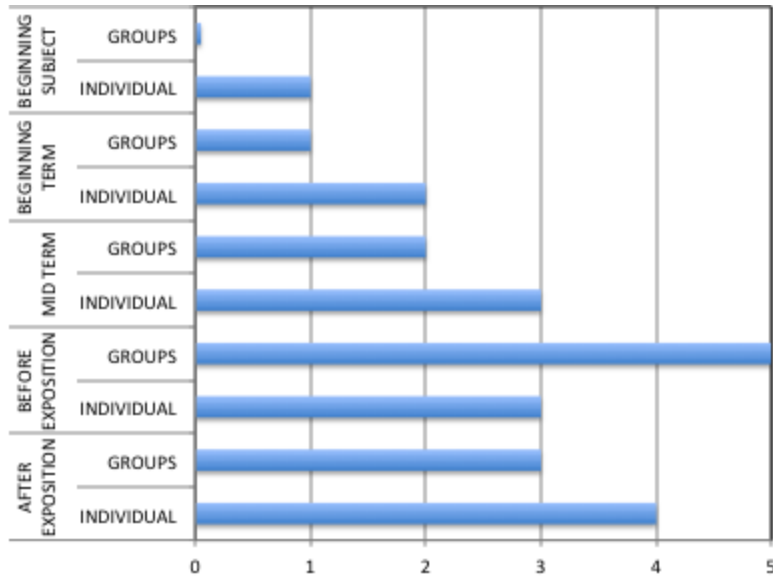


Fig. 3. Results registered by the teacher regarding the number of 'extra' tutoring sessions either in group or individually.

- The record (number) of the 'extra' tutoring sessions gathered by the teacher for the resolution of questions raised in relation to individual or group roles is summarized below:

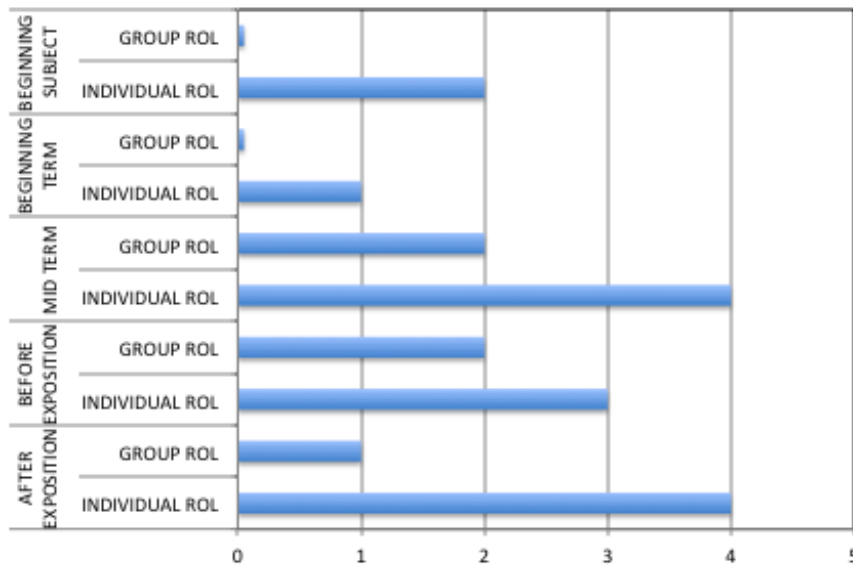


Figure 4. Results registered by the teacher regarding the number of 'extra' tutoring sessions for the resolution of questions raised in relation to both individual and group roles.

4. Conclusions

In general, a very positive evaluation from the students involved in this experience is observed. Students have considered that this activity is (in ranking order):

Clear / valuable / important / useful / adequate – pleasant – exciting / necessary – entertaining / easy

Consequently, students become aware that a difficult activity does not need to be unpleasant or little enjoyable, as well as that it can be very useful for their learning process. As for their behavioural self-assessment, students show full involvement in the group work and value their participation in the tutoring sessions as very important (both in the 6 established sessions and the extra sessions), recognizing them as an essential methodological element in their training by grading their implication in this activity with a 9 out of 10. In the same way, the graphics obtained show that students have used extra tutoring hours both for the preparation of the research work and after the oral presentation. This proves that during this activity students have become aware of the teacher's role as their learning guide and are prepared for the teacher to continue playing this role for the rest of their training (not only until the accomplishment of this activity). Likewise, the reading of the information obtained about the resolution of the questions raised in relation to individual or group roles is very positive. Even though individualized tutoring still prevails, the results obtained seem to conclude that students continue to work in groups even after having finished the activity, since the number of group tutoring sessions, which was non-existent at first, appears to be of some importance now. The membership of the extra tutoring sessions in group coincides entirely with that of the work groups formed for the accomplishment of the research works. It appears, therefore, that students have adopted cooperative studying models that have expanded to their general learning activity.

Acknowledgements

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The analysis of music teachers' questionnaire survey on issues of developing harmonic hearing

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Abstract

The developmental tendencies of the society determine the choice of a new pedagogical paradigm at all stages of higher education. In Latvia, the development of music teachers' harmonic hearing takes an important place in their study process. The investigation on the music teachers' opinion about issues of developing harmonic hearing can identify and reveal essential problems pertaining to music teachers' professional training.

Research aim: to study music teachers' opinion about the problems of developing harmonic hearing on the basis of the developed questionnaire.

Research methods: a survey, computer data processing by SPSS, data analysis.

The paper deals with the analysis of the conducted research on music teachers' opinion about children's compositions (Miller, 1999) and on music teachers' opinion about pupils' individual differences in music classes (Hewitt, 2005). The questionnaire on issues of developing harmonic hearing designed for music teachers is presented. To examine the current situation in the field of developing music teachers' harmonic hearing in Latvian educational institutions and abroad, a questionnaire survey among professional music teachers was conducted. The results obtained from the questionnaire survey will contribute to the development of strategy and methodology for developing music teachers' harmonic hearing at sol-fa classes.

Keywords: harmonic hearing, questionnaire, opinion.

1. INTRODUCTION

The developmental tendencies in the contemporary society determine the necessity to choose a new pedagogical paradigm in all stages of higher education. In Latvia, the development of music teachers' harmonic hearing occupies an important place in their training process, because a music teacher is often simultaneously also a conductor of a school choir, amateur choir or some other choir. The research on this issue, done in Latvia, and findings from it (Davidova & Marnauza, 2003; Marnauza, Kriumane, Gzibovskis, 2005; Znutins, 2009; etc.) testify to this fact and also allow us to broaden our perceptions about the tendencies in the development of Latvian music culture.

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The effectiveness of musical activity largely depends on the development level of musical hearing, first of all (Kazkayasi, Yetiser & Ozcelik, 2006). Harmonic hearing is a component of musical hearing. A consecutive and purposeful development of harmonic hearing is also an integral condition for polyphonic choral singing. The quality of intoning in a choir or in a vocal ensemble depends on the development level of harmonic hearing.

The problem concerning the development of harmonic hearing is one of the most essential issues in music pedagogy. In traditional investigations, harmonic hearing is viewed as one of the principal human musical abilities (Vigners, 1936; Teplov, 1947; Seashore, 1967; Petrushin, 1997; Hallam, Gross & Thaut, 2009).

Though thorough investigations in the field of the development of harmonic hearing have been carried out, it is vital to study the opinions and experience of teachers as well: a comprehensive research on teachers' opinions about the development of harmonic hearing may contribute to identifying and determining the problems existing in the sphere of professional training of music teachers, as well as to constructing a further pedagogical process and also to tackling practical tasks of training and educating prospective music teachers.

Research aim: to explore music teachers' opinions about the problems of the development of harmonic hearing, based on the designed questionnaire.

Research methods: questionnaire survey, data processing in SPSS program, data analysis.

2. METHODOLOGY OF THE RESEARCH

To prove the topicality of the research and explore music teachers' opinion about the current situation in the field of the development of harmonic hearing, teachers' questionnaire survey is conducted in professional education institutions of Latvia and abroad (Belarus, Lithuania, Estonia). A questionnaire survey is one of the most widely spread and effective methods for collecting primary sociological and statistic information. According to A. Pipere (Pipere, 2011), a questionnaire is one of the most widely spread and effective methods of collecting information, which helps to study either the current situation of the practice of pedagogical work or teachers' opinions relating to the problem under the research.

In this research, the advantage of a questionnaire survey as a method of pedagogical investigation is seen in the following:

- a questionnaire survey provides an insight about the situation in a contemporary music education, about the level and the need to develop music teachers' harmonic hearing;
- being anonymous (without psychological pressure), a questionnaire survey leads to more well-founded answers on respondents' part;
- a questionnaire survey helps to collect information from a sufficiently great number of music teachers;
- the structure of the offered questionnaire contributes to identifying and determining the problems existing in professional training of music teachers;
- structuring of questions enables us to make the analysis of different forms and methods of developing harmonic hearing, to evaluate their topicality and interrelations with other problems;
- the use of different type of questions – closed-ended questions, which contain a full list of answer choices, and semi-closed questions, which include a list of prepared questions, but also provide an opportunity to give one's own answers. The advantages of semi-closed questions are as follows: a) they make it possible to avoid misunderstanding the questions, b) they make it simple to fill in the questionnaire and process the obtained data;
- the data obtained from a questionnaire survey can be computer-processed;
- singling out essential and problem questions provides the opportunity to concentrate efforts and resources on dealing with the most vital problems.

3. THE PROCEDURE AND RESULTS OF THE RESEARCH

The conducted questionnaire survey was individual. R. Weiss (Weiss, 1994) and J. Creswell (Creswell, 1998) recommend researchers to conduct pilot interviews before the study begins in order to test their research questions. A pilot study allows the researchers to get a clearer idea of what they want to know and how they can best find it out without the expense and effort of a full-fledged study. They are used commonly to try out survey questions and to refine research hypotheses (Grossman, 2013).

A pilot study was carried out in 2011. In the first questionnaire survey, 60 music teachers from Latvia, Lithuania, Estonia and Belarus took part. R. Weiss (Weiss, 1994) states that choosing 60 respondents completely independently of each other will result in a statistically significant survey of most populations. The questionnaire contained seven questions and a table with forms of work for the development of harmonic hearing at music classes, which had to be assessed by five parameters of the Likert-Scale. First were the questions of sociological nature, pertaining to music teachers' age, education and work experience. They were followed by the specific ones, relating to the research theme – the development of harmonic hearing. The data received from the questionnaire survey were processed by computer SPSS program.

4. THE ANALYSIS OF THE RESULTS OBTAINED FROM THE FIRST STAGE OF A QUESTIONNAIRE SURVEY

The analysis of the received results showed that the average age of the respondents was 43.5 years, the youngest being 25 years old, the oldest – 63 years old (See Figure 1).

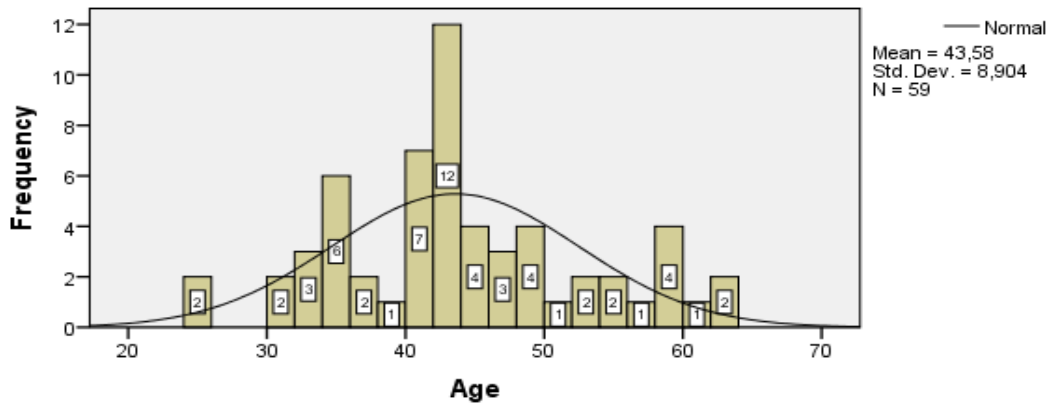


Fig. 1. Respondents' age

Length of respondents' pedagogical experience fluctuates between 1 and 44 years, the statistic mean being 20.5 years (See Figure 2).

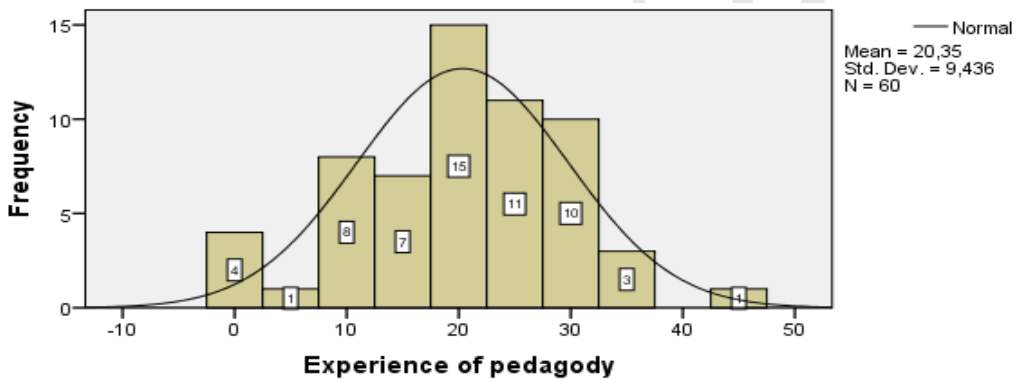


Fig. 2. Respondents' experience of pedagogy

A more detailed processing of statistic data is shown in Table 1

Table 1. Statistics of respondents' age and experience of pedagogy

	Age	Experience of pedagogy
Mean	43,58	20,69
Median	42,00	21,00
Mode	42	20
Std. Deviation	8,904	9,128
Range	38	43
Minimum	25	1
Maximum	63	44
Percentiles	25	37,00
	50	42,00
	75	48,00

5 teachers –respondents had secondary special education, the rest – 55 respondents – higher education (See Table 2).

Table 2. Respondents' education

	Frequency	Percent
secondary special	5	8,3
music pedagogy	55	91,7

Teachers – respondents having a master's degree constituted 43.3%, those having a bachelor's degree – 56.7%

Table 3. Distribution of respondents by scientific degrees in percentage terms

	Frequency	Percent
No	34	56,7
Yes	26	43,3

The analysis of the survey data on the question *How much time in percentage terms was devoted to the development of harmonic hearing during your musical-pedagogical training?* Yielded the following results:

Table 4. Time (in percentage) allotted to the development of harmonic hearing in current practice

	Frequency	Percent
10%-20%	20	33,3
20%-40%	40	66,7

66.7% of respondents stated that 20% - 40% of their training time was allotted to the development of harmonic hearing, whereas 33.3% of respondents indicated 10% - 20%.

The answers to the question *How much time in terms of percentage do you think is expedient to allot to the development of harmonic hearing?* provided the results as follows: 31.7% of respondents indicated 10% - 20% of the total time of classes, but 68.3% of respondents – 20% - 40%.

Table 5. Time necessary for developing harmonic hearing

	Frequency	Percent
10%-20%	19	31,7
20%-40%	41	68,3

Practically all respondents recognized the importance for music teachers to develop harmonic hearing: answers of 59 respondents were positive, the answer of 1 respondent – negative.

Table 6. Importance of developing music teachers' harmonic hearing

	Frequency	Percent
No	1	1,7
Yes	59	98,3

The question *Which types of musical hearing, in your opinion, are important for the profession of music teacher?* was given a detailed cluster analysis. The respondents were offered either to choose three out of the given seven types of musical hearing which, in their opinion, were important for a teacher of music or to give their own answer variants. Table 7 shows the frequency dynamic of the choice of different types of musical hearing made by the respondents.

Table 7. Importance of developing music teachers' harmonic hearing

	Responses		Percent of Cases
	N	Percent	
Melodic	48	26,1%	81,4%
Harmonic	54	29,3%	91,5%
Timbral	7	3,8%	11,9%
Inner	24	13,0%	40,7%
Metrorhythmic	32	17,4%	54,2%
Vocal	10	5,4%	16,9%
Polyphonic	9	4,9%	15,3%
Total	184	100,0%	311,9%

The table shows that among all types of musical hearing harmonic hearing takes the leading position – 91.5%, next comes melodic hearing – 81.4%, and the third position is taken by metrorhythmic hearing – 40.7%. The least important, in respondents' opinion, is timbral hearing – 11.9%.

Table 8 shows the distribution of the choice of types of musical hearing, depending on respondents' scientific degree. Respondents – masters ranked melodic hearing as the first, while respondents, having a bachelor's degree – harmonic hearing. Metrorhythmic type of musical hearing again takes the third position among the priorities.

Table 8. Distribution of the choice of types of musical hearing depending on respondents' scientific degree

	Masters		Total
	No	Yes	
Melodic	26	22	48
Harmonic	31	23	54
Timbral	2	5	7
Inner	16	8	24
Metrorhythmic	20	12	32
Vocal	9	1	10

Polyphonic	1	8	9
Total	34	25	59

The cluster analysis allowed dividing all respondents into homogenous groups. The division made according to the respondents' choice produced two groups. The first group of respondents – 28 people (46.7%) is characterized by the fact that they do not choose inner hearing at all, harmonic hearing and melodic hearing – 100%, metrorhythmic – 75%, they do not choose timbral, inner and vocal types of hearing, polyphonic – 25%.

Clusters

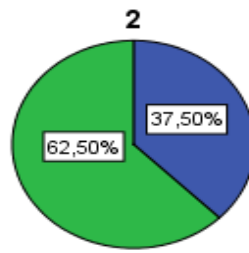
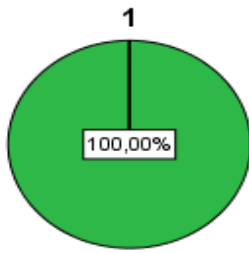
Input (Predictor) Importance



Cluster	2	1
Label		
Description		
Size	53.3% (32)	46.7% (28)
Inputs	Inner 1 (75.0%)	Inner 0 (100.0%)
	Melodic 1 (62.5%)	Melodic 1 (100.0%)
	Vocal 0 (68.8%)	Vocal 0 (100.0%)
	Metrorhythmic 0 (65.6%)	Metrorhythmic 1 (75.0%)
	Timbral 0 (78.1%)	Timbral 0 (100.0%)
	Harmonic 1 (81.2%)	Harmonic 1 (100.0%)
	Polyphonic 0 (93.8%)	Polyphonic 0 (75.0%)

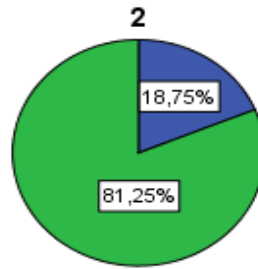
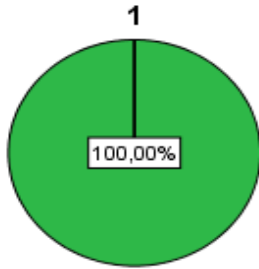
Fig. 3. Division of respondents into homogenous groups

The second group – 32 people (53.3%) – is characterized by the fact that each respondent in this group chooses inner type of musical hearing; moreover, none of the other types of musical hearing reaches 100% importance. The color diagrams below clearly show the respondents' priorities in each group.



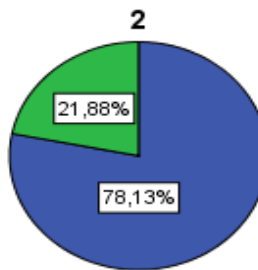
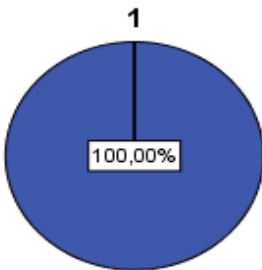
Melodic

0
1



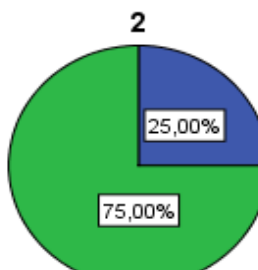
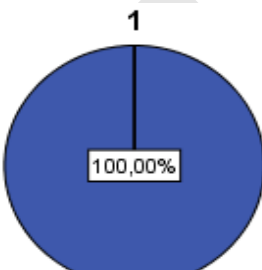
Harmonic

0
1



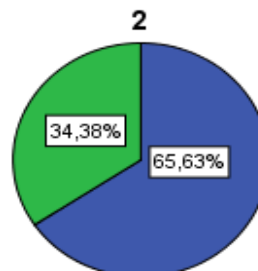
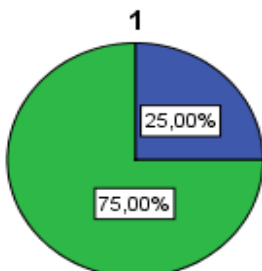
Timbral

0
1



Inner

0
1



Metrorhythmic

0
1

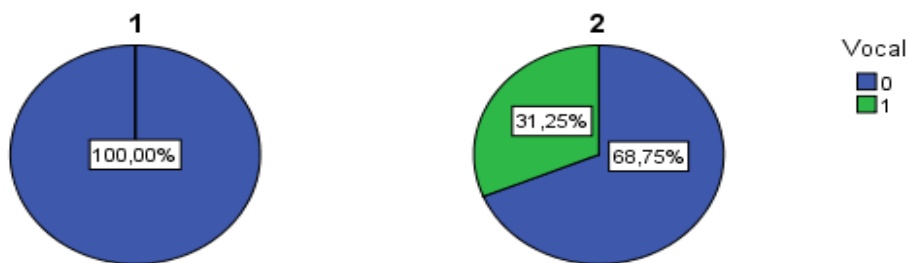


Fig. 4. Percentage of the choice of the types of musical hearing by homogenous groups of respondents (the first and the second)

The analysis of the first and the second cluster group was made in order to reveal the quantitative indicators of respondents' choice (See Table 9).

Table 9. Quantitative indicators of cluster groups

	ClusterGroup1		Total
	1	2	
Melodic	28	20	48
Harmonic	28	26	54
Timbral	0	7	7
Inner	0	24	24
Metrorhythmic	21	11	32
Vocal	0	10	10
Polyphonic	7	2	9
Total	28	31	59

On the basis of indicators given in Table 9, the Test Statistics was done in order to reveal the dependence of respondents' age and pedagogical experience on the choice of priorities given to types of musical hearing.

However, this test did not provide statistically significant results: inclusion of the respondents in different groups does not depend on preliminary given parameters.

The data collected from the questionnaire survey are not sufficient for a qualitative analysis of the choice made by the cluster groups. The analysis of the table, showing the forms of work for the development of harmonious hearing during music classes, assessed by applying the Likert-Scale, did not produce statistically significant results either. This can be attributed to the fact that the respondents had not been offered discussable questions which would involve alternative questions. This shortcoming initiated working out the next stage of the questionnaire survey – a pilot study, where the respondents will be given alternative answers to questions concerning the development of harmonious hearing and work forms at music classes.

5. CONCLUSIONS

1. The first stage of the conducted music teachers' questionnaire survey on issues of harmonic hearing resulted in identifying the current problems relating to music teachers' training:
 - Practically all the respondents recognized and marked the importance of developing music teachers' harmonic hearing (59 respondents out of 60);
 - 68.3% of respondents marked that 20% - 40% of music class time should be allotted to the development of harmonic hearing. However 33.3% of respondents indicated that in the current practice only 10% - 20% of time is devoted to the development of harmonic hearing.
 - The cluster analysis showed that harmonic type of musical hearing takes the leading position among other types of musical hearing offered for respondents' choice – 91.5%, and it is followed by metrorhythmic hearing – 40.7%. According to the choice made by the respondents, the least important is timbral hearing – 11.9%.
2. The cluster analysis of homogenous respondents' groups revealed some shortcomings in the conducted questionnaire survey, because the collected data turned out to be insufficient for a qualitative analysis. Problems also arose over the analysis of respondents' assessment of work forms for the development of harmonic hearing at music classes (Likert-Scale).
The analysis of the statistic data is the basic information for constructing a further stage of the research – pilot study, where for the respondents alternative answers to questions concerning the development of harmonic hearing and work forms at music classes will be given.

Acknowledgements

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Appendix C.

Questionnaire for teachers

Age

Education secondary special: theory of music

choir conducting

other

higher: theory of music

music pedagogy

master's degree in pedagogy: yes _____

no _____

Length of your work experience in pedagogy _____

Length of your sol-fa teacher's work experience (if you have it) _____

Which types of musical hearing, in your opinion, are important for the profession of music teacher, (mark 3 possible variants):

1. Melodic _____
2. Harmonic _____
3. Timbral _____
4. Inner _____
5. Metrorhythmic _____
6. Vocal _____
7. Polyphonic _____
8. ? _____

The development of musical hearing in your musical- pedagogical preparedness takes (how much in percentage?):

10% - 20% _____

20% - 40% _____

A different variant (write it down, please) _____

Is it important to develop music teacher's harmonic hearing, in your opinion?

Yes _____

No _____

What percentage of classroom time should be given just to the development of harmonic hearing, in your opinion?

10% - 20% _____

20% - 40% _____

A different variant (write it down, please) _____

Please, fill in the table below according to 5 parameters (Likert-Scale). How important, in your opinion, is the role of working forms used at music lessons for the development of harmonic hearing?

Completely disagree – the lowest assessment for the criterion selected ,

Completely agree – the highest assessment for the criterion selected

Undecided – You cannot answer the given question. It would be desirable, if you used this variant of answer as seldom as possible.

If needed, other variant of answers can be filled in in the free space.

Working forms					
Singing	Completely disagree	Disagree	Undecided	Agree	Completely agree
Harmonic singing of intervals					
Two-part singing					
Polyphonic singing a capella					
Canon singing					
Singing of chord sequences					
Singing of folk songs for choirs					
Other forms					
Kinds of music dictations					
Two-part dictation where one voice is written down and the second voice should be added					

Dictation of one voice with accompaniment

Harmonic dictation in the given key

Polyphonic dictation

Analysis by hearing

Analysis of intervals

Analysis of chord sequences

Analysis of fragments from the given piece of music

Other kinds

Creative tasks

To compose the accompaniment for the given melody

To compose the second voice for the given melody

Vocal improvisation of two (or more) voices

Other tasks

4th International Conference on New Horizons in Education

The analyzing of the computer science learning habits of the freshmen mechanical engineering students on the Obuda University in the last five years

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Abstract

Aim of this research to analysing the learning habit of the freshmen undergraduate mechanical engineering students in the first semester and compare it in the last five years. The students have to pass two tests until the semester the first on the 6th-7th week the second on the 13th-14th week. Between the tests the students may to participate on the presentations. My personal experience shows the big part of the students until the presentation period do not have learned the teaching material week in week out just have visited the presentations or simple stayed at home. The situation is unfortunately same by other subject too at the university and the colleagues have same experience from other universities and colleges in Hungary. The learning habit of the undergraduate mechanical engineering students could be following and analysing if we can see the details of the downloading of the teaching materials. The Students may download the teaching material of basic Computer Science from an own developed web based system. The material is accessible in the system just after the presentation, on the same day the students have the opportunity to save read and learn it. They get username and password to log into this system, which logs the download saving usernames and the time of each file transfer. A huge mass of data makes possible a statistical audit and the analysing based on. The analysing of the data made possible to draw conclusions regarding the learning habits of undergraduate mechanical engineering students. I analysed the saved data of downloads in the last five years to see the changing of the learning habits of the students if is it recognisable. We can draw the inference on learning habits analyzing the distribution of downloads before the test. The prepared two chart show frequency of downloads depending on time. On the first chart we can see the frequency of downloads before the first test, on the next chart the frequency of downloads before the second test. We can see one-one peak on the charts it means most downloads took place the day before the first test and the second test. The overwhelming part of students wanted to learn the material only one day before the test. On the days of tests we can see a little bit lower number of downloads. The result of the analysing shows the students downloaded the teaching material on the day of test or the previous day. It means these students did not have enough time to read, understand and learn the teaching material before the test and these habits do not have changed in the last five years. The earlier analysing showed the situation is same in the first semester and the undergraduate mechanical engineering students did not recognise the advantage of the learning earlier before the test. I have found strong correlation between the days before the test and the number of downloads of teaching material. It needs a didactical method to motivate the students to download the teaching material earlier and read it to pass the tests in higher percentage because this learning habit has influence on the results of the successful exams too.

Keywords: learning; habit; undergraduate; student; computer; science; higher education

1. INTRODUCTION

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Since 2007 have been downloading students the teaching material of basic Computer Science from an own developed web based system. The students got username and password to log into the system, which on the other hand saved who what and when has downloaded. It is mean, we have a huge mass of data to analyze.

Aim of this research to analysing the learning habit of the freshmen undergraduate mechanical engineering students in the first semester and compare it in the last five years. The students have to pass two tests until the semester the first on the 6th-7th week the second on the 13th-14th week. Between the tests the students may to participate on the presentations. My personal experience shows the big part of the students until the presentation period do not have learned the teaching material week in week out just have visited the presentations or simple stayed at home. The situation is unfortunately same by other subject too at the university and the colleagues have same experience from other universities and colleges in Hungary. The learning habit of the undergraduate mechanical engineering students could be following by analysing the data of downloading of the teaching materials. The material is accessible in the system just after the presentation, on the same day the students have the opportunity to save read and learn it. A huge mass of data makes possible a statistical audit and the analysing based on. The analysing of the data made possible to draw conclusions regarding the learning habits of undergraduate mechanical engineering students. I analysed the saved/logged data of downloads in the last five years to see the changing of the learning habits of the students if is it recognisable.

2. THE ANALYZING OF THE DISTRIBUTION OF DOWNLOADS

First of all we need to see how the human memory is working (Bloom, B.S.; Engelhart, M.D.; Furst, E.J.; Hill, W.H. and Krathwohl, D.R., 1956), the taxonomy of learning, teaching, assessing (Anderson, Krathwohl and Bloom, 2001) and the levels of learning to guide the students through the process of learning (Hoffmann, 2011). These researches shows the reason why student have to take part on the presentation and listening, after that read the learning material at home at same day or at least at the week of the presentation to deepen the knowledge and get better result on the exam.

I have some successful experiments and researches with the consequences the students could get a ~half-one mark better paper results we can see that ones in the following. I developed some programs to show how works different steganography and cryptography algorithms (Kiss G, 2010a), I used web conference system during the lessons (Kiss G, 2012a; Kiss G, 2012b) and my students used Computer laboratory to learn easier the Computer Architecture. These methods were enough to grow the successful exams and the students got better paper results but it was not enough to modify the learning habits of the students (Kiss G, 2010b). The big part of my freshmen students downloaded the learning material one day before the test (Kiss G, 2010c).

2.1. The student population using the system

In order to evaluate the data we have to know the number of students who have used the system to download the tutorials of basic Computer Science. You can see this in table 1. According to the table we can see I taught more than three hundred freshmen mechanical engineering students in the last five years.

Table 1. The number of freshmen students mechanical engineering students by years

Years	Students population
2008-2009 1 st semester	376
2009-2010 1 st semester	430
2010-2011 1 st semester	401
2011-2012 1 st semester	368
2012-2013 1 st semester	439

2.2. The frequency of downloads before the test

We can draw the inference on learning habits analyzing the distribution of downloads before the test. The next two chart show frequency of downloads depending on time. On the first chart we can see the frequency of downloads before the first test (chart 1), on the next chart the frequency of downloads before the second test (chart 2).

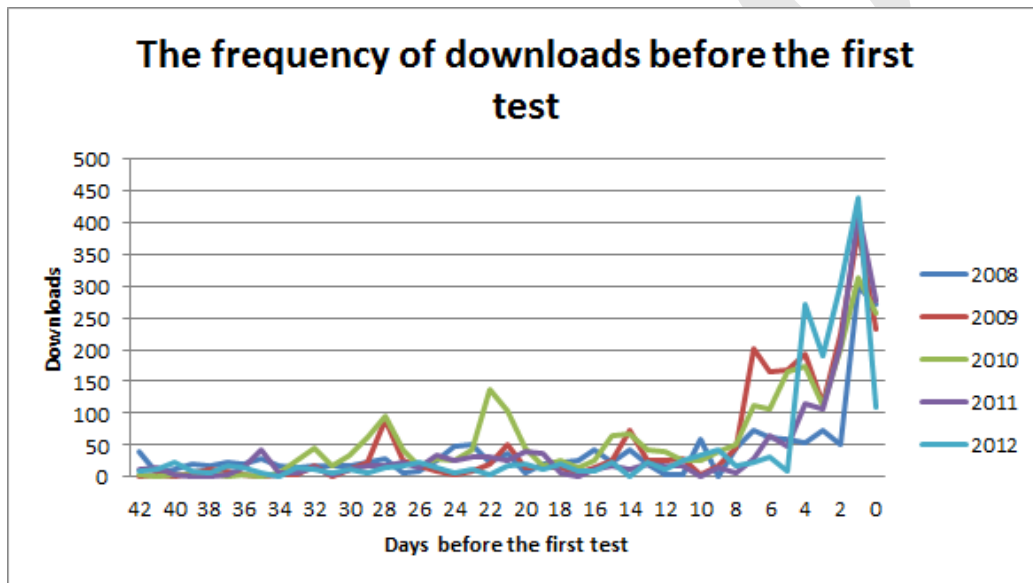


Chart 1. The frequency of downloads before the first test

You can see now that most downloads took place the day before the first test. You can see two peaks in the case of mechanical engineers in 2009 (the brown line), because one group of students have believed to write the one week earlier and downloaded the learning material 7 days earlier.

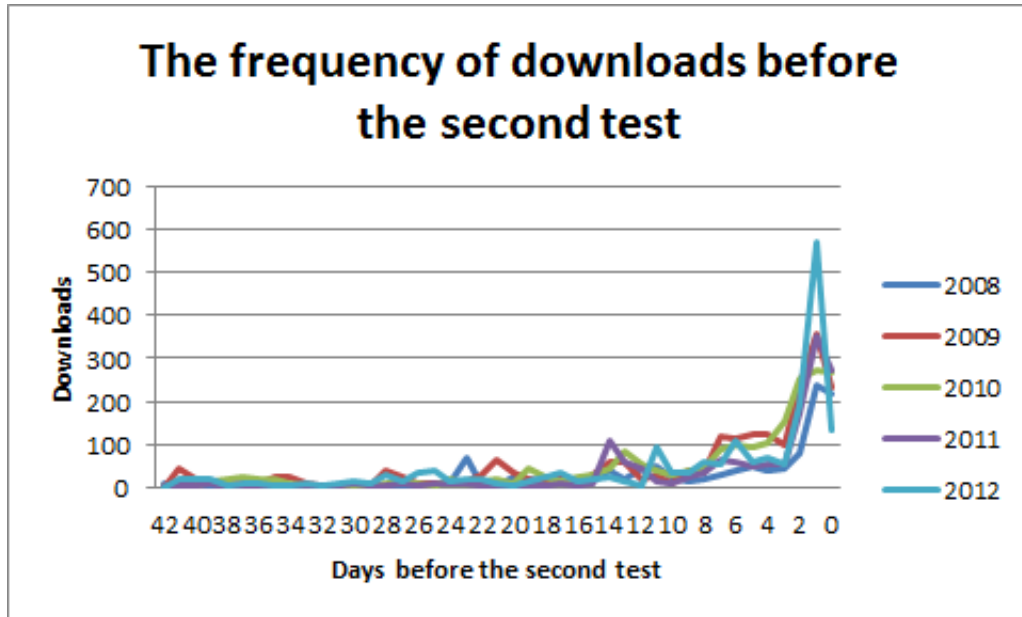


Chart. 2. The frequency of downloads before the second test

The next chart shows a similar situation: most downloads took place on the day before the test. It is important to notice the high number of downloads on the day of the test too. It means a big group of students does not learn the material just makes a copy in order to use it during the test.

If we spend more time looking at these charts, we can see the frequency of downloads before the test did not change in the last five years against the different didactical teaching methods (Kiss G, 2010a; Kiss G, 2012a; Kiss G, 2012b). These methods were good to get the students better results how downloaded the material in time before the test but the big part of the students can not pass the exam. They do not interesting for this subject and the download the learning material just one day before the test. If I want to change the learning habit of these students, I have to find another way to press the students to start to learn in time to pass exams in the first Semester.

2.3. The relationship between the distribution of download and the number of days before the test

We have seen earlier the highest number of downloads of the learning material was one day before the test and the second biggest one was on the day of the test in the last five year in the first semester. Now we have to calculate the correlation coefficient to see the measures of association.

Table 2. The correlation coefficient of download distribution and days before the test

Years	Correlation coefficient
2008-2009 1 st semester	-0,50
2009-2010 1 st semester	-0,68
2010-2011 1 st semester	-0,69
2011-2012 1 st semester	-0,54
2012-2013 1 st semester	-0,53

According to the table we can see the negative correlation between the distribution of downloads and the number of days before the test. It means if the number of days before the test are lower in this case the number of downloads are bigger. It is not surprising because the charts show same situation.

These correlation coefficient values show the measures of association, i.e. how strong the connection between distribution of downloads and the number of days before the test is. The calculated values mean there are middle strong negative correlation existing between the distribution of downloads of the learning material and the number of days before the test. We can see strong connection in the first semester in 2009 and 2010.

We can see the learning habit of freshmen student not changed in the last five years. The big part of students waited to download the learning material one day before the test or on the day of the test. This learning time is not enough to pass the test.

3. Conclusion

We could see after the analyzing of the distribution of downloads of the learning materials in the first semester in the last five years the learning habit of students not changed. We have found strong negative correlation between the distribution of downloads and the number of days before the test. It means the overwhelming part of students downloaded the teaching material on the day of test or the previous day they wait for the last moment before the test to download the learning material and learn it. They are not enough motivated to read the material at home week in week out and they can not pass the exams too. My colleagues have same experience at the university.

Future work

We have to try to motivate the students to learn the material week in week out to modify the learning habit. The students could be to write on every week a short test from the learning material of the previous presentation after that we can see how changed the learning habit of the students

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4th International Conference on New Horizons in Education

The balance between digital tools and traditional teaching in civil engineering's topics.

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Abstract

In the last twenty five years, digital tools has been with no doubt a support in teaching civil Engineering topics; in this work some of them are remarked, related with hydrology concepts and we emphasize the importance of having a balance given such topics based on the traditional education style so that the student achieves a deep learning of the concepts and a practical formation.

Keywords: digital tools; Civil engineering; traditional teaching.

1. INTRODUCTION

The traditional problem based learning in Civil Engineering curricula has been the most commonly applied in several countries; it is important to create a mixed methodology that includes both problem and project based learning and not only chalk and talk (Mills & Treagust, 2003). There are great expectations in the learning based on a web environment, such as those of Ebner & Holzinger (2002) which found an important increase in learning topics of structural concrete, although some problems in the coordination of the forum and chats to solve the students' doubts. Some efforts to improve the teaching learning process in hydrology by considering field and laboratory modules has been made in Chile by Vargas, Cartes & Dussaubat (2007), 86% of 41% students who answer a test, had reported such activities improved their team work in 94% and the 86% of the them considerer such activities increased their knowledge of the hydrology topics they developed. In the particular area of the hydrology the teacher needs to take into account the random nature in many of the involved variables, Is not possible to design an uniform system with validity in teaching hydrology in all countries because their local natural differences (UNESCO,1975).

The evolution of computers from the 1940's brought a huge development in helping tools to teach some topics of civil Engineering (Chapra & Canale, 2000). Particularly the hydrology topics currently are explained with more flexibility and faster software which allows to illustrate and show the concept with few words. But not all can be taught with programs and images; the practical experience of the teacher inside the classroom is very necessary to be displayed. In this document we present two examples where both the software and a traditional explanation are needed to explain complete a hydrological concept.

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2. Cases study

2.1 The double Gumbel probability distribution function

In several regions of many countries maximum annual inflows historical data have a behavior similar to a double Gumbel distribution (González, 1970, Rossi, 1984):

$$(1) \quad F(x) = p (e^{-e^{-y_1}}) + (1 - p) e^{-e^{-y_2}}$$

Where

$$y_1 = \alpha_1(x - \beta_1)$$

$$y_2 = \alpha_2(x - \beta_2)$$

The double Gumbel distribution function is applied in the statistical study of annual maximum inflows that belong to two different populations, the first comes from the inflows incurred by rainfall related with dominant meteorological phenomena in the region under study and the second one is from inflows produced by cyclonic precipitation or rains of winter known as "Equipatas", normally larger than the first ones.

The parameters of that distribution can be obtained with an optimization problem, such as the minimum squares; the AX© software is a useful tool to get those parameters. Currently genetic algorithms, which become a novel evolutionary computing techniques since the middle eighties (Goldberg,1986) are applied to make easier the nonlinear optimization problem and the problem to find the five parameters of the double Gumbel distribution can be made by applying the likelihood method. Everything is possible with the properly tool.

The AX software only needs to have a txt data file which contains in one column the maximum annual inflow data. The interface is very friendly for the user and y very few steps results are obtained (See Figure 1). In the same case, if a student has the Matlab© toolbox with a genetic algorithm already set, almost only with a program with extension .m can be enough to give an objective function and the problem is easy solved (Figure 2) . The genetic algorithm will give the student a set of parameters and the double Gumbel can be drawn in a worksheet, Excel©, for example (Figure 4).

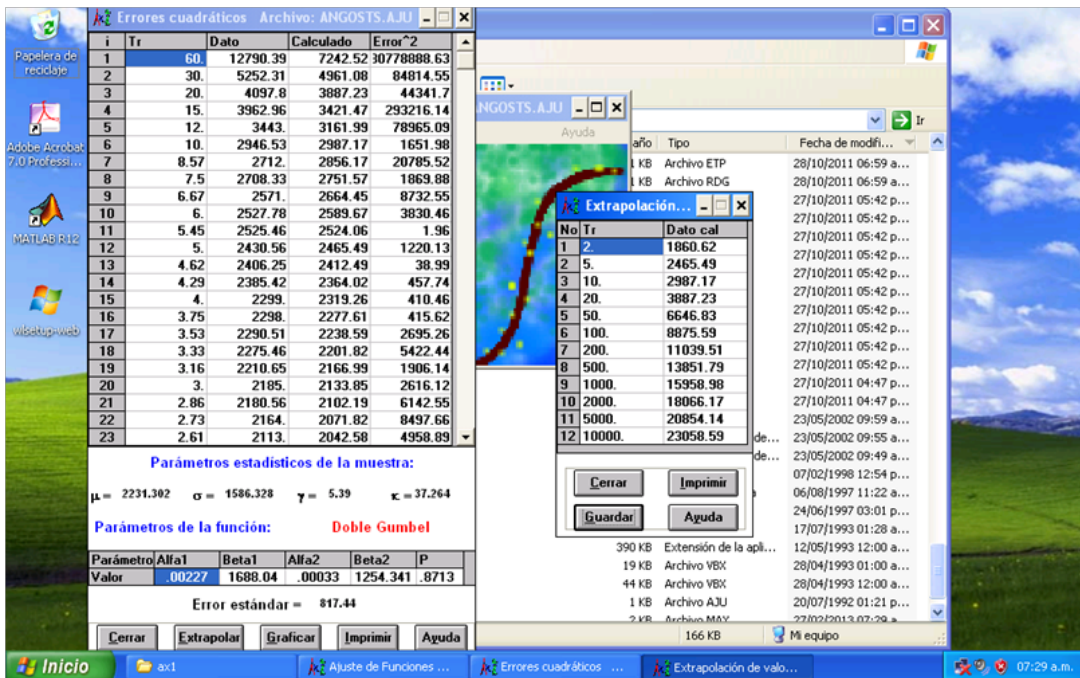


Figure 1. Frames of AX © software's results

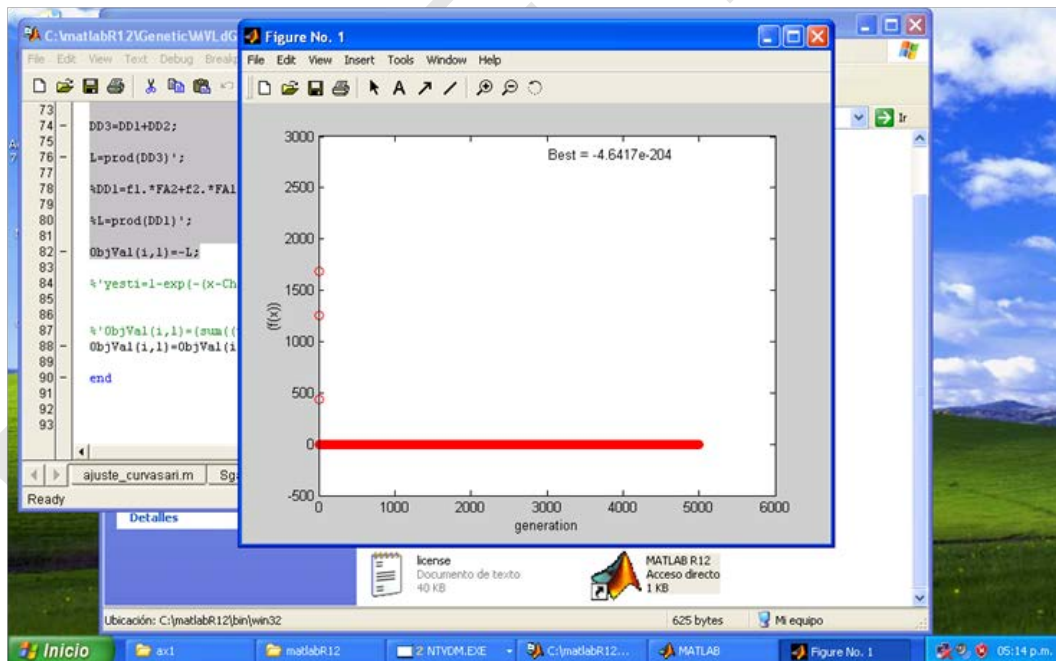


Figure 2. Frames of a genetic algorithm's results by applying Matlab©

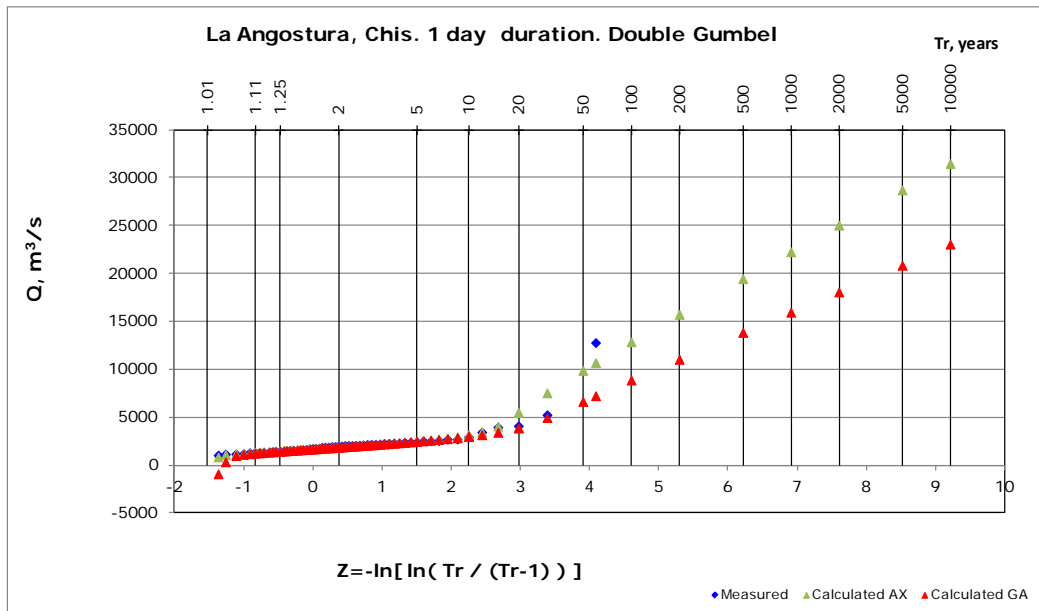


Figure 3. Comparison between double Gumbel distribution function obtained with two procedures. All points.

But how can we read or understand those results?, Will the software give the students all the information?. Only virtual forums on line can solve all doubts? , The teacher is unnecessary in the classroom?.

The answer is no, the student needs the practical experience from his teacher, it is very important to have a general talk about the topic, it is very important to show real examples where data had double Gumbel function as the best fitted distribution. The obtained data can be applied for the design or revision of a dam's spill without to analyzing anything, but that is not a good professional practice. The results must be visualized, a comparison between the historical data and the obtained data must be done before to take any further decision.

For example, the points in the tails of the historical distribution function normally tend to be apart from the theoretical curve; those points must be detailed analyzed because they can be really mistakes in the measurement or they are only extraordinary historical values. it is convenient to find out in local news, old climate reports, local people memories, if there were episodes of hurricanes or draughts in the dates from the unusual data in the tails. In Figure 4 we can see the changing in the results if the biggest point of the analyzed series is removed.

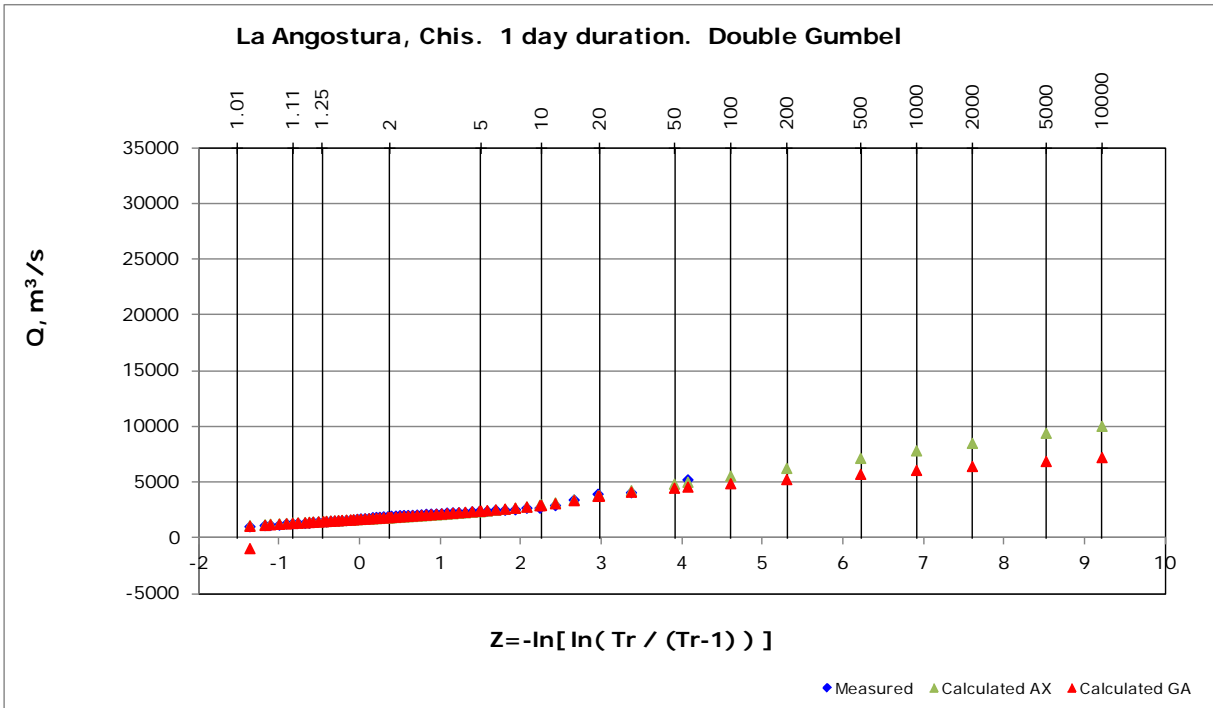


Figure 3. Comparison between double Gumbel distribution function obtained with two procedures. Biggest point removal

By comparison of Figure 3 and 4, the result changes dramatically. In this case a true extraordinary event happened and the results in Figure 3 were taken as the best.

2.2 Flood routing

The flood routing allows to the civil engineering to know information about a dam’s safety operation. When the results of the flood routing are taken directly from a software without any further analysis the decisions can be risky.

Here we present the case of the flood routing made for a student during his master’s thesis. The Chicoasen dam’s design avenue for a return period was routing with the results shown in Figure 4.

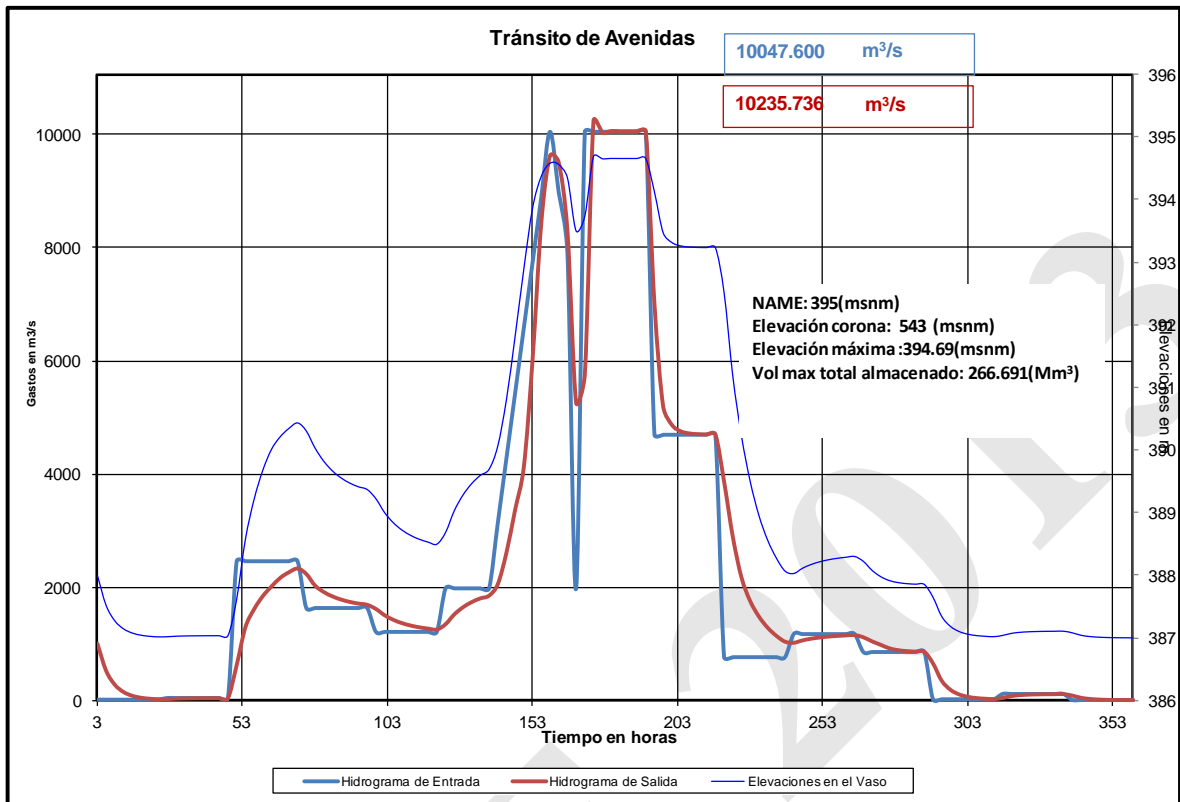


Figure 4. Flood routing with an unusual outflow hydrograph's shape

The professor suggested to the student to check both the inflow hydrograph and the oscillations generated in the outflow hydrograph. It was necessary to give a better shape to the inflow peak and to give a less time interval for calculations in order to avoid the oscillations. After the student made all these changes, the new flood routing was that shown in Figure 5, and this was better than the one in Figure 4. The inflow changes in more than 2000 m^3/s and the outflow was according to the nature of a flood routing. The maximum elevation also was important in this new estimation because with the discharge rule there could be a risk hydrological for the dam because the surcharge pool elevation (SPE or NAME in Spanish) is overtopped in 10 cm.

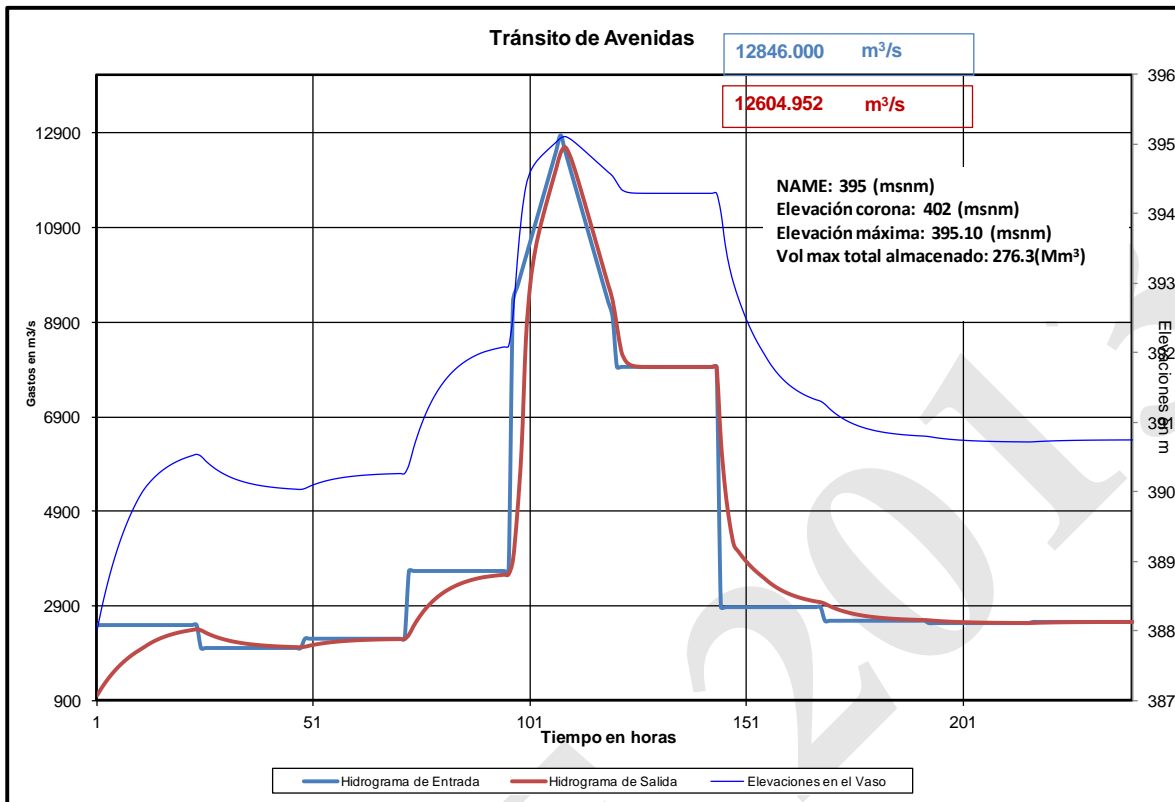


Figure 5. Flood routing recalculated after some modifications in the data

3. Conclusions

Several cases of study in Civil Engineering, in particular in hydrology, are solved with mathematical models and probability distribution functions. There are a lot of software which can lead to a numerical solution.

Students must to do a good balance between the results given by digital tools and the explanations they get in class by their teachers. A careful analysis must be done for every simulation they do, before to make any conclusion or before to give the reports of these results to a decision maker, because many civil engineering works are related with the safety of the population allocated near those works, so it is important to guarantee a properly hydrological and hydraulic function.

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4th International Conference on New Horizons in Education

The causal impact of economic education on achievement of optimum outcomes

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Abstract

It seems nowadays that economic education in vulnerable and complex environment provides helpful option, how to isolate and use information in the most effective way. However, various considerations emerge, among others Stigler (1970), if dissemination of economic knowledge to broader public is worth the cost. We pose a question, whether decision making of individuals is positively affected through incentives governed by a possession of economic education, followed by significant reduction of suboptimal behaviour. Hypothesis verified via the laboratory experiment enables to derive important implications related to better functioning of the economy, if educational effect will be proved.

Keywords: economic education; laboratory experiment; optimum outcomes

1. Introduction

Recently, many institutions started to encourage public with vast array of educatory programs with aim to enhance their economic knowledge and skills. Rising interest in economically educated public is not necessarily valued only because of its own sake, but often it is believed that it may result in better market outcomes. It seems that economic education may provide guidance for subjects in order to isolate and apply information in the most effective way, in contemporary vulnerable and complex environment. This is however associated with considerations, whether the causal impact between economic education and achievement of optimum outcomes is really present. Various studies are devoted to examination of this issue like Bernheim and Kotlikoff (2001), Carpena et al. (2011), Walstad and Larsen (1992), Harris (1999), Fetting, (1998) or Aghion (2009). Some of them find stronger, some of them weaker evidence in favour of economic education.

Diverse results achieved in these studies are closely related to the fact that it is not clear whether dissemination of economic knowledge to broader public is worth the cost, since the utility from its application might be exceeded by costs as emphasized by Stigler (1970). As a result the effect of economic education on outcomes may not be straightforward.

This study aims to follow the latest research and tries to examine whether economic education might play any role in achievement of optimum outcomes. We assume that individuals endowed by adequate economic knowledge may better cope with market conditions, which might contribute substantially to significant reduction of sub-optimal behaviour. If the effect of economic education on behaviour of individuals will be proved, there might be serious implications for various public policies in terms of efficiency of various educatory programs. Our hypothesis will be verified with help of the laboratory experiment. Subjects are setting prices on artificial

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market with aim to maximize profits and have to cope with the sudden change in the level of prices in the middle of the experiment. The examination of educational effect is secured by two qualitatively different samples, which differ by the level of economic education achieved.

Results indicate that the role of economic education is not straightforward with regards to the ability of subjects to achieve optimum outcomes. First section describes basic facts related to significance of economic education with brief literature survey regarding the research related to exploration of potential effects of economic education. The second section consists of description of basic hypothesis and experimental design. Third section outlines results gained on the basis of experimental testing. The last section concludes.

2. The Case if any for Economic Education

If we adopt more general view on economic education, it is sometimes referred to as economic literacy. This might be understood as “the possession of basic understandings and skills needed by all individuals for intelligent management of their own business and financial affairs, and for responsible participation as citizens in the determination of public policy and the maintenance of the general welfare.” (Wentworth, 1976, p.4) Alfred Marshall saw economic literacy as “the study of mankind in the ordinary business of life” (Minehan, 2006, p.1), by which it is indirectly stated that individual’s success is hidden in his ability to apply basic economic concepts in the ordinary business of life, if proper support is provided. This includes the ability to make wise financial decisions, build wealth, and evaluate the policy decisions that face all individuals.

Whether the effect of economic education holds is substantially affected by the way how individuals acquire economic knowledge and how effectively they use it. According to Stigler (1970) each individual considers potential benefits and costs regarding economic education. Since economics discipline is considered as universal knowledge, used in numerous and highly diverse situations, it is definitely worth the cost. However, the condition regarding the cost is not fulfilled, since individuals after introductory course are not capable to apply basic economic concepts to the real situations, although they recognize it. According to Salemi (2005) economic knowledge in this sense may be rather formal. This suggests that the effect of education on economic outcomes might not be substantial as suggested. However, still Walstad and Rebeck (2002) find out in their research that small but significant difference (6-11%) exists between the economic knowledge of the public and those who have taken the first college economics course. Variety of reasons might be responsible for potential weak effect of economic education, for instance how education is provided, since frequently basic courses are subject to artificiality criticism (Salemi, 2005). In this sense it appears that economics might not be universal knowledge.

Additionally, attention should be also paid to how people gain economic knowledge and how their conceptual image about the economic world is created. Economic efficacy enters into the process of how economic knowledge is acquired. This concept is understood as the individual’s belief about the level of his power or control in order to influence basic economic processes in the economy. People might have different level of economic efficacy. If people have low level of economic efficacy, this means that they may not be necessarily interested in learning economics, since they consider it not as useful experience, (Wentworth, 1976). Costs of learning are at the expense of utility gained from economic knowledge. Thus a low sense of economic efficacy will correlate positively with disinterest in learning economics. This further supports Stigler’s argument regarding costs related to economic knowledge, which individual has to consider.

3. Experimental Design

3.1. Hypothesis

We assume that acquired economic education might reduce individual behaviour leading to suboptimal outcomes on markets. Hypothesis will be examined with help of the experiment, which was partly inspired by study of Fehr and Tyran (2001). Individuals are setting price with aim to maximize profit in artificial monopolistic competitive economy. Players with strong incentives, supported by financial reward, try to maximize their profit, defined as a function of their particular price and the average price level, which is determined by price set by other players. During the process of learning, subjects are assumed to select the profit-maximizing price, which should be consistent with the total general equilibrium of the economy, if other subjects choose the correct price maximizing their profits, as well.

Possibility to explore the effect of economic literacy is secured by setting two types of groups in the experiment, which can be compared. The first treatment is composed of well educated experimental group of subjects in their master's degree, who have advanced knowledge of microeconomics, macroeconomics, game theory and other related economic courses. This gives them solid backgrounds in economics and analytical skills, which enable them to apply basic economic concepts to various situations. This implies that the effect of economic education within this group should according to our assumption lead to better economic outcomes. The second treatment is in the role of control group, where students are in their first year of bachelor's degree, therefore having only minimum knowledge of basic economics. This according to the Salemi (2005) leads only to formal knowledge, which implies significantly lower ability to reach optimum outcomes. Therefore, the effect of economic education should be the least possible.

3.2. Experimental Design

Experiment is based on n-player pricing game with monopolistic competition. The game has 40 rounds plus one trial period, with a group size of $n=4$. 76 subjects participated in the experiment, which was conducted in the Laboratory of Experimental Economics, University of Economics, Prague. Experiment is divided into a pre-shock and a post-shock phase. Fully anticipated negative price shock is implemented during the game, which is common knowledge to participants.

In order to test the impact of economic education on economic outcomes, treatment groups differ with respect to economic education attained as mentioned above. Both groups received payoff functions, which provide them with information about their pricing strategy. Pay-offs of participants are expressed in real terms.

The real pay-off of subject i is given by:

$$\pi_i = \pi_i(P_i, P_{-i}, M) \quad i=1, \dots, n \quad (1)$$

where P_i stands for nominal price, P_{-i} is the average price of the other $n-1$ group members, and M is nominal shock variable. Subjects are informed about payoffs of other subjects in the group, since x and y types players are present in the real treatment. For more detailed specification of real payoffs and real payoff tables see Fehr, Tyran (2000). Major experimental parameters inspired by Fehr and Tyran (2001) are as follows. The money supply before the shock in each treatment was given by $M_0 = 42$, while in the post-shock phase it was given by $M_1 = M_0/3 = 14$. The average equilibrium price over all n group members in the pre-shock phase is given by $P_0^* = 18$,

whereas in the post-shock equilibrium $P_1^*=6$. The length of the pre-shock and the post-shock phase is $T=20$. Experimental subjects interact via computer terminals and have to select in each period an integer price P_i in interval from 1 to 30. They also have to form an expectation about average price of other $n-1$ players. Moreover, they have to indicate their confidence about their expectation, which was measured by choosing an integer on scale from 1 to 6, where 1 indicates that the subject is not at all confident, whereas 6 indicates that the subject is absolutely confident. This should indicate, whether well educated subjects were more comfortable when decision-making about the price was made.

It is assumed that well educated subjects will easily overcome the shock imposed in the middle of the experiment and their behaviour should be directed more frequently towards optimum outcomes. On the contrary, control group should face higher uncertainty owing to absence of economic knowledge, leading to more volatile and suboptimal behaviour. We also predict that well educated subjects will adjust their price in faster manner as opposed to low educated subjects, whose ability to adjust might be hindered.

4. Results

In order to investigate the effect of economic education, we opted for evaluation of the performance of both educational treatments in the real environment before and after the shock with respect to the pricing strategy and development of the average income, with regards to the size of average welfare loss (WL) and the total size of income achieved before and after the shock. Mainly the post-shock phase is important for our analysis, where the comparison between the RH Mgr and the RH Bc enables to isolate the difference in the performance, for which economic education might be responsible. Following Figure 1 shows the performance of both treatments with regards to the average price prevailed. Economy's equilibrium price, to which subjects should converge, is $P_0^*=18$ before the shock and $P_1^*=6$ after the shock.

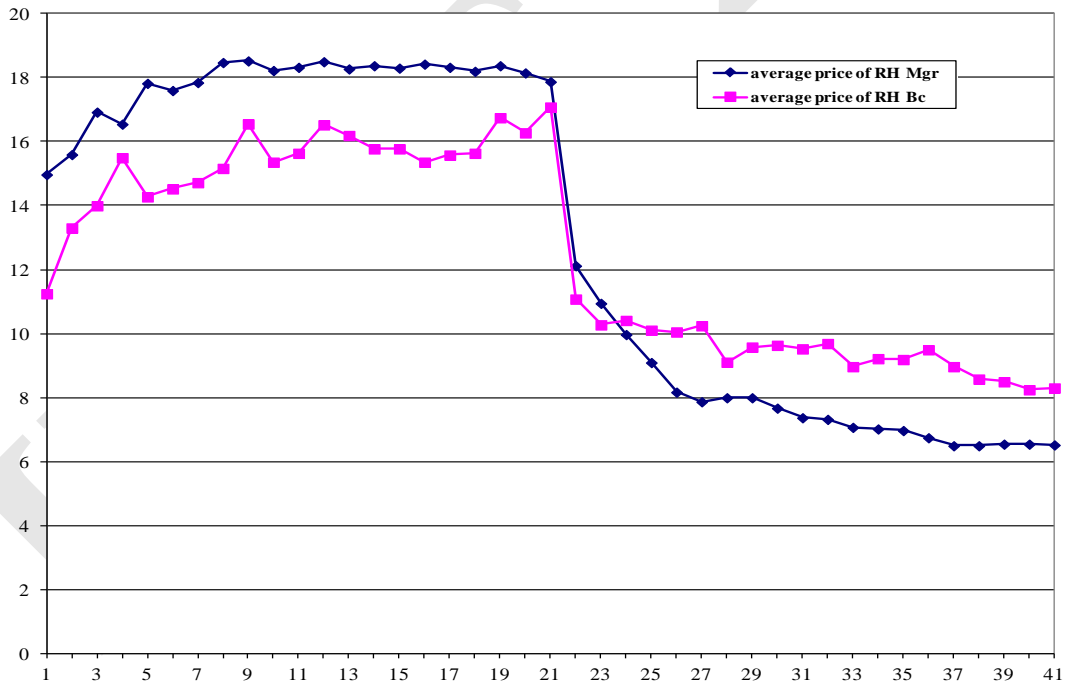


Fig. 1. Development of the average price across educational treatments

The development in the pre-shock phase clearly shows that RH Bc have mostly tendency to stay below the equilibrium price $P_0^*=18$, whereas the average price of RH Mgr is mostly around the optimum. This is evident mainly for the last periods before the announcement of the shock. The crucial for our investigation is behaviour of subjects after implementation of the shock. In the first post-shock period, reaction of both treatments is similar and the price is not reduced significantly for well-educated treatment as opposed to initial expectations. Notwithstanding, the following periods of the post-shock phase indicate that well educated treatment exhibit slightly better performance, since the adjustment of the average price to its optimum post-shock value is slightly faster. In contrast, low educated treatment seems to follow reluctant pricing path, mostly around 8 even at the end of the post-shock phase. Based on afore-mentioned development, it seems that there might be some role for economic education although weak one.

The character of pricing strategy was translated directly in the size of income earned, (See Figure 2). Although well-educated treatment did not maximize rewards for the whole pre-shock phase, tendency towards maximum rewards may be encountered in the second half of this phase. On the contrary, rewards for low-educated treatment are usually below the well-educated one. The size of rewards for this treatment reflects their reluctance to adjust after the shock. Development of income for both treatments directly after the shock is almost indistinguishable, which suggests that immediate response to the shock is in no way better for well educated treatment in the first post-shock period. However, subsequently the difference among treatments in terms of rewards is clearly visible. This again provides support for the potential existence of educational effect.

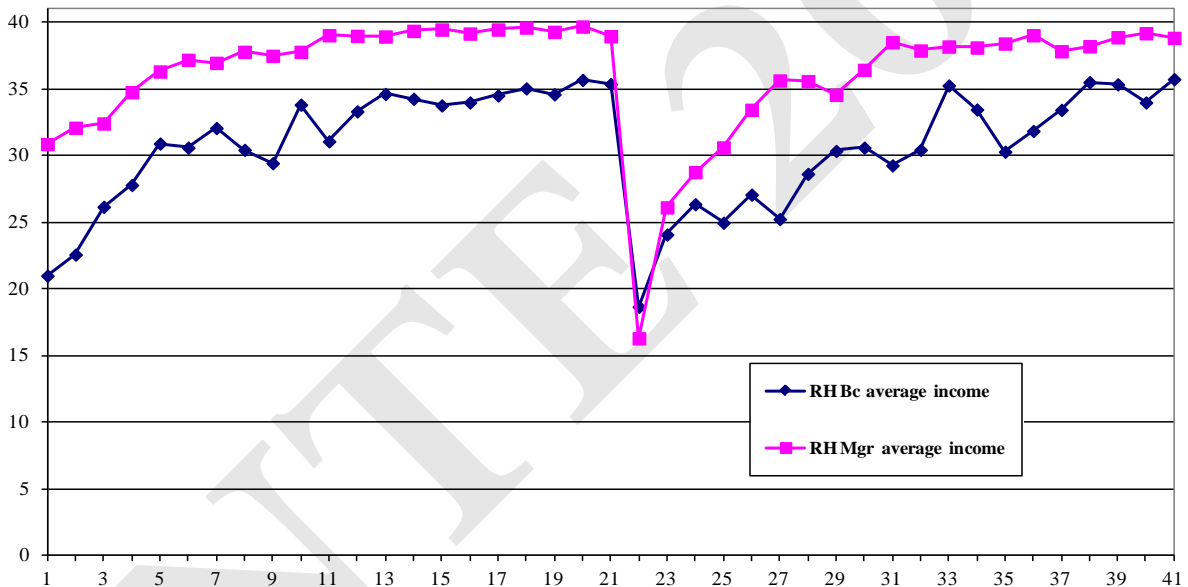


Fig. 2. Development of the average price across educational treatments

The performance of treatments was also assessed in terms of average welfare loss experienced by artificial market, based on price deviations of individuals from optimum outcomes. Development in Figure 3 documents that low-educated treatment experienced substantially higher welfare loss as opposed to well educated treatment. Consistent with previous results, the development in the first post-shock period shows that the size of welfare loss is almost comparable among treatments, which weakens our presumptions about educational effect.

However, in other periods of the pre-shock and post-shock phase, well educated treatment clearly dominates over low-educated in terms of lower average welfare loss. This suggests that decision-making about the price was directed more frequently towards optimum outcomes for well-educated treatment.

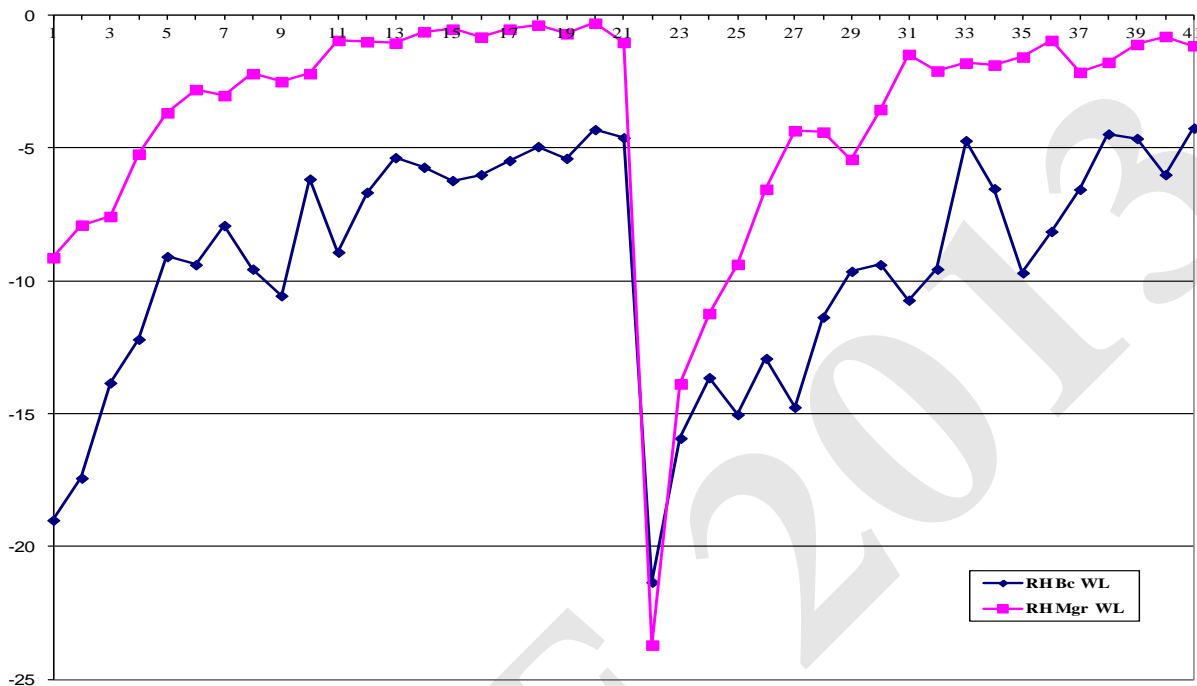


Fig. 3. Development of the average price across educational treatments

Table 1 summarizes the performance of both treatments in terms of income achieved in the pre-shock and post-shock phase and in terms of average welfare loss. If our educational hypothesis holds, it should be reflected in lower welfare loss achieved by well educated treatment.

Table 1. Income Development and Average Welfare Loss for the RH Mgr, NH Bc

Educational Treatments	RH Bc	RH Mgr
Pre-shock income	661.2778	785.875
Post-shock income	600,75	700.8
Total income	1262.028	1486.675
Welfare loss	-23.05%	-9.35%

If we compare the size of average welfare loss among treatments, welfare loss for RH Mgr is -23.05%, whereas for RH Bc is -9.35%. As a result, the difference in welfare loss about 15% speaks in favour of RH Mgr. This implies that well-educated treatment slightly eliminates tendency of subjects to move towards suboptimal outcomes. Still, the difference in the performance is not substantial in order to derive strong statements about educational effect. This is supported also by the total size of income gained, which is higher for well educated group, but not significantly. For both treatments reduction of income is present after implementation of the shock, which suggests that well-educated treatment was not able to cope with this change in the first period after the shock. However income for well-educated treatment is higher not only for the pre-shock, but also for the post-shock phase, which further supports partly our presumptions that individuals might be at least partly benefited due to the possession of economic knowledge.

5. Conclusion

Rising interest in economically educated public poses questions related to potential effects of economic education on achievement of optimum outcomes. We aimed to verify this educational hypothesis with help of the laboratory experiment. Results of our investigation are two-fold. Firstly, well educated subjects appeared to dominate mostly over low educated ones not only in more frequent selection of optimum prices and the size of rewards for the whole pre-shock and post-shock phase. The size of welfare loss speaks also in favor of well educated individuals, with the difference among treatments around 15%. Our second finding weakens our educational hypothesis. It appears that there is one exemption, when well educated subjects are indistinguishable in their performance with regards to low educated ones. Directly after the shock is imposed, individuals are not able to change their pricing strategy immediately and their performance is in the first moment comparable to the low educated individuals. Inability of well educated individuals to cope with the shock implies that the effect of economic education might not so straightforward as suggested. Additionally, the performance of well educated subjects is better but not distinctively in order to derive clear conclusions regarding educational effect. Our findings are similar to findings of Walstad and Rebeck (2002), which confirm that weak effect of economic education is the case. Possible explanation of the weak effect of economic education might lie in the fact that costs of economic education exceed benefits and economic knowledge is still rather formal even in case of well-educated individuals, which is in line with Stigler (1970) and Salemi (2005). Additionally, broader experimental sample could be desirable. Although our results are not strong enough in order to derive obvious implications, the presence of formal knowledge was weakened at least slightly by educational effect and well educated individuals exhibited better performance with regards to optimum outcomes. The existence of causal effect of economic education with respect to achievement of optimum outcomes raises several implications. It may contribute to better decision-making of individuals on markets with regards to financial matters and avoid possibility of suboptimal decisions. Further it may help to promote sustainable economic policies. However, further research on this issue is highly desirable in order to verify, whether educational effect really holds. This could support even further basic incentives of institutions to invest into economically educated public.

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4th International Conference on New Horizons in Education

The classroom as an extension of our society: empowering students through technology in service learning to bridge the global digital divide

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Abstract

The rapid development of our society created a number of social issues including the global digital divide which can be encountered on international, national and local levels. My papers discusses the role and importance of engaging students in discussing, understanding and contributing to the bridging of this gap using their information technology skills in a service learning experience to help people who don't have access to technology or the necessary computer skills to succeed in our society. Volunteering for 15 hours in centers like Julie's Family Planning, ABCD Parker Hill neighborhood center, Notre Dame Education Center, students experience firsthand the impact of the lack of technology skills and access to technology on various groups of people, and get a chance to help these people.

Students keep an online blog to record and reflect on the outcome, meaning and importance of their service learning activities, such as: teaching computer classes, designing curriculum, tutoring in computer skills, database entries and cleanup in offices computer upgrades. They share in their blogs the meaning and importance of engaging in service learning to solve social problems using their own technology education. This experience expands our classroom to engage and empower students to become active and responsible members of our society, while using their formal information technology education in a practical way.

Keywords: education, technology, social responsibility, engagement, social justice, global digital divide

1. Introduction

The rapid development of our society created a number of social issues including the global digital divide which can be encountered at international, national and local levels. My papers discusses the role and importance of engaging students in discussing, understanding and contributing to the bridging of this gap using their information technology skills in a service learning experience to help people who don't have access to technology or the necessary computer skills to succeed in our society. Volunteering for 15 hours in centers like Julie's Family Planning, ABCD Parker Hill Neighborhood Center, Notre Dame Education Center, students experience firsthand the impact of the lack of technological skills and access to technology on various groups of people, and get a chance to help these people.

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Students keep an online blog to record and reflect on the outcome, meaning and importance of their service learning activities, such as: teaching computer classes, designing curriculum, tutoring in computer skills, data entries and maintenance and computer upgrades. They share in their blogs the meaning and importance of engaging in service learning to solve social problems using their own technological education. This experience expands our classroom to engage and empower students to become active and responsible members of our society, while using their formal information technology education in a practical way.

1.1 Background:

A few years ago, I was asked to teach a course called: Social Issues and Technology. The course was based on readings from Thomas Friedman's book: "The world is flat". The book is an eye-opener about the way the entire world has been transformed in the past ten years. Friedman defines ten "flatteners" and explains how they contributed to major changes in our global society. Predictably, information technology in its many facets shows up repeatedly among the flatteners of the world. A question begged: how can I best involve my students in understanding the depth of the transformation of our society as a result of the rapid development and implementation of technology?

In my experience, students in a liberal arts private institution are usually focused on a variety of fields, rarely on technology. They have very little understanding of the major role that technology has been playing for years now in redefining and reconfiguring the workforce and the global economy. I started designing this course around what I thought was the biggest challenge: showing my students the reality of a world impacted so dramatically by information technology.

The first few weeks were spent understanding what a flat world means and how it was created. During this time, students started to understand the role and impact that information technology has on our society. Learning about the global world and the process of outsourcing, students became aware of the new demands on the global workforce, the new challenges and opportunities.

One of the first social issues identified during the class discussions was the global digital divide. This is a concept that was approached and discussed in many different contexts by students, but mostly as a global issue. One of the particular aspects of the global digital divide, in my opinion, is that its globalism is anchored on its roots that are reaching deep in all societies, developed or not. When one says "global digital divide", most people think Africa, Middle East, or South America. Few people realize how far reaching inside our society this divide is.

One way to think of the global digital divide is as "the global disparities between developed and developing countries in regards to access to computing and information resources such as the Internet and the opportunities derived from such access". (Wikipedia) Unlike the traditional notion of the "digital divide" between social classes, the "global digital divide" is essentially a geographical one. The digital divide is "an economic inequality between groups, broadly construed, in terms of access to, use of, or knowledge of information and communication technologies. The divide inside countries (such as the digital divide in the United States) can refer to inequalities between individuals, households, businesses, and geographic areas at different socioeconomic and other demographic levels, while the Global digital divide designates countries as the units of analysis and examines the divide between developing and developed countries on an international scale". (Wikipedia)

I see this reality as one of the main social issues in the American society, and one that the younger generation needs to fully understand before they join the workforce.

1.2 Implementation:

It is my firm belief that the best way to understand a social issue and to be able to assess the impact that it has on the society is to immerse yourself in it. In order to do that, I decided to create my course as a service course, which means that as part of my class each student would have to volunteer a certain amount of time (15 hours per semester in this case) to use their technical skills to help people in need as an effort to understand and contribute to solving the problems caused by the digital divide.

The students performed service at three centers:

- ABCD Parker Hill Neighborhood Center
- Sisters of Notre Dame Education Center
- Julie's Family Planning

The service was planned and organized in such way that students would be able to provide assistance in these centers in various ways:

- In-class tutoring: all centers provided computer literacy classes to their clients at various levels. My students were able to help the instructors set up the computers with the proper software, help students learn how to use productivity and educational software.
- Computer setup and maintenance – all centers were very understaffed with IT personnel – the computers are in their vast majority outdated, infected with malware and adware, in great need of “cleaning” and defragmentation.
- One-on-one tutoring for people whose skills were so deficient that they could not even participate in a beginner level computer literacy class.
- Cyber-café help for people who had certain computer skills and were interested in learning skills that were not being taught at that time in the computer classes offered in the centers.
- Curriculum design and implementation –the students were asked participate in the assessment of classroom materials and update/improve them.
- Data entry – students were asked to help out a lot in the offices, as most of the staff was behind in inputting data in the various systems. Ultimately, not being able to input the data had a negative impact on being able to properly get and use the right resources to help their clients.
- Design, maintain and use spreadsheets and databases in the offices to help staff better keep track of clients and resources.
- Training staff in using the various programs and applications that the centers had available.

The students had the option to decide which center they wanted to work with, best match their computer skills with the needs of the centers and people they were working with. One of the most sought after skill was the combination of foreign languages speaking (Spanish in particular) and the ability to tutor people in computer literacy issues.

The students enrolled in my service learning course came from various backgrounds themselves and were at various levels of computer fluency:

- some of the students had a very thorough computer science education, as they were completing individualized majors or minors in information technology;
- other students were participating in this class as part of their sociology or global studies education, but had very little formal education with computers themselves;
- other students were just interested in the combination of social and technology aspects as they were heading out to start working, as seniors in college;

The bottom line is that no matter what level of computer education they were at, they were all astonished by the low-level of proficiency with information technology they encountered in these centers, both in regards to the clients of the centers, and their staff.

Before the service component of the course started (week 4 of the class), we arranged for visits to all centers and meetings with the centers managers so we better understand what kind of computer skills they needed. Lists of necessary tasks to be performed, staff and clients to work with, and schedules were compiled. The students had to sign up in advance for the hours and tasks they were going to perform and became responsible for their completion.

In order to prepare them for the experience in the centers, we approached the issue of the digital divide on many levels:

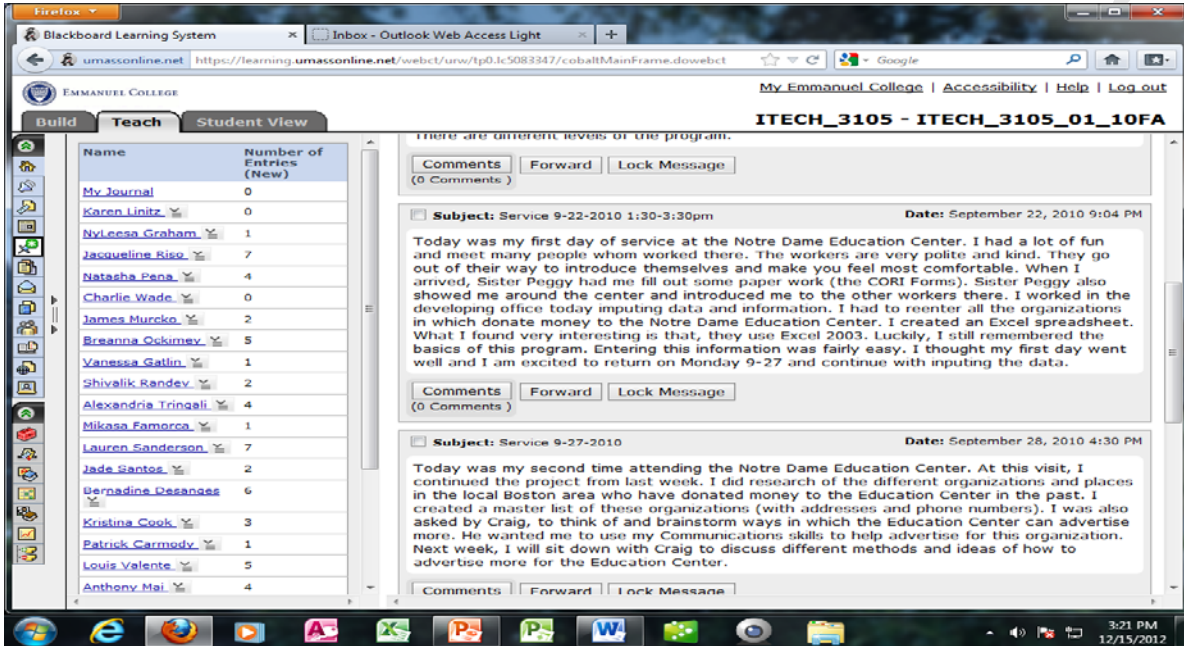
- We defined, discussed and analyzed the digital divide in a global and local context. We researched the many facets of the digital divide and became acquainted with the different projects and efforts made by individuals and organizations to bridge the digital divide.
- We compiled a list of the skills needed to perform the various tasks in the centers.
- During class time, IT skills were reviewed, updated or taught, as necessary.
- Each student created and maintained throughout the semester an individual blog to accomplish the following:
 - Keep track of all the tasks they had to perform and the activities they were engaged in;
 - Record their observations about the digital divide created by inadequate computer skills and the impact this had on people's lives and careers;
 - Describe how they solved the problems they faced or get the help of the class if their skills were not enough at the time to address the issue;
 - Reflect on the impact of technology on different groups of our society;
 - Reflect on their experience in the centers in general and the impact that this has on their education and future careers.
- The blogs were maintained on a weekly basis, and discussed as a group in class.

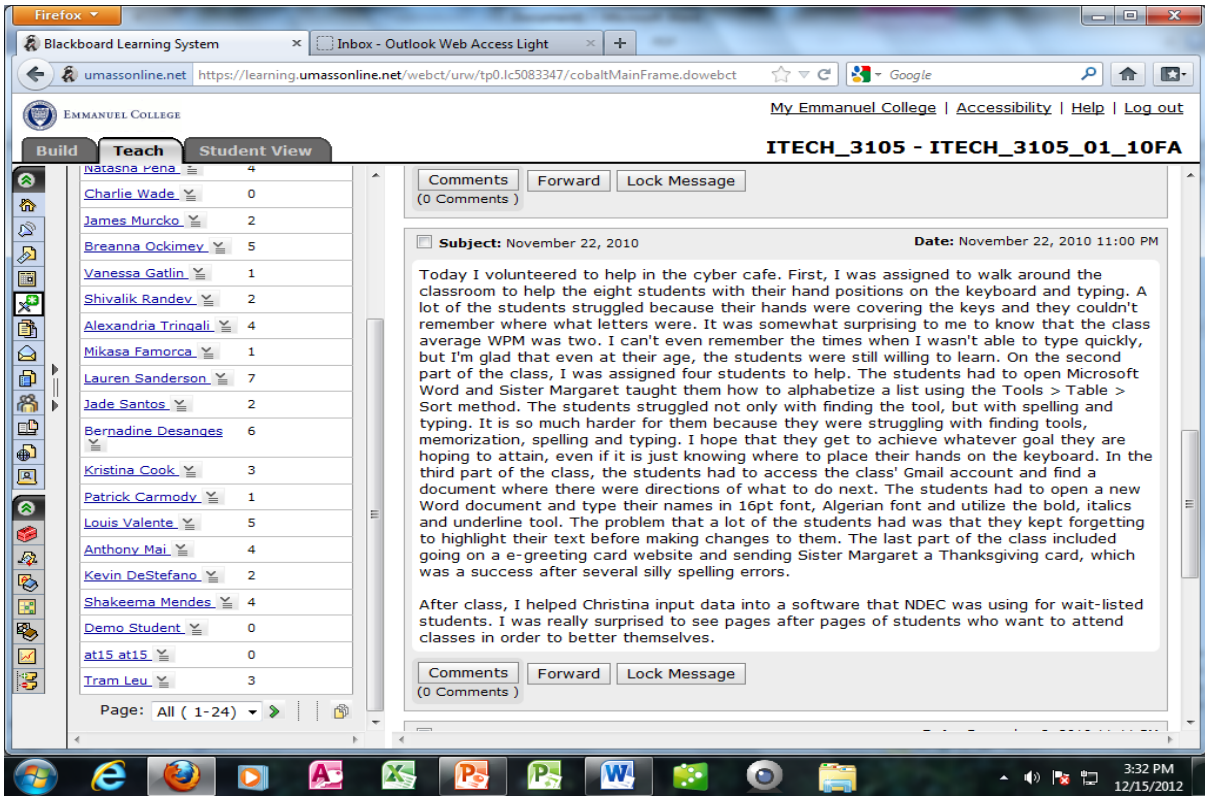
In the next section, I will try to give an appreciation of the kind of experiences students had and shared with me and with each other, by showcasing some of the entries in the online blogs.

1.3 Work showcase

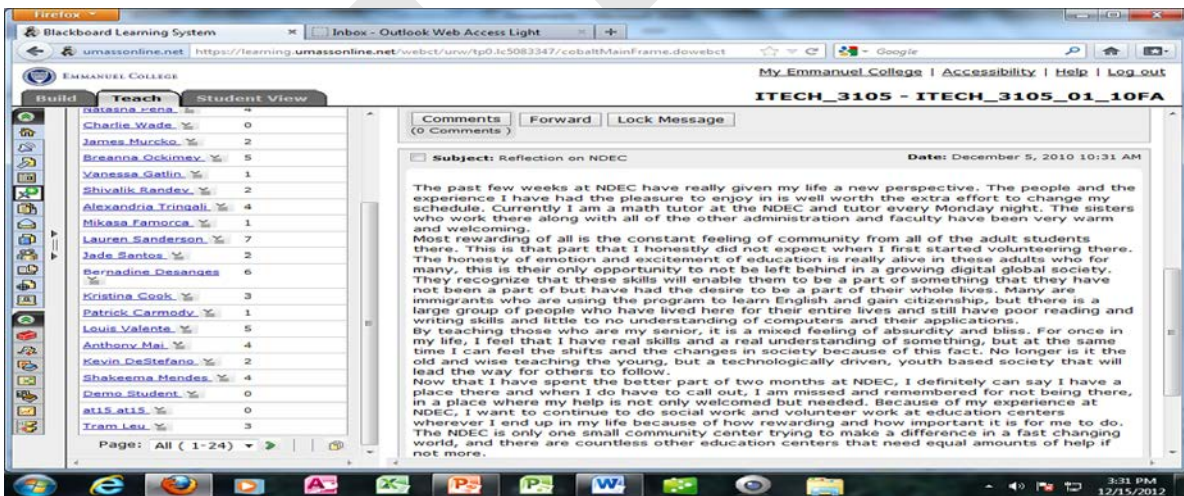
The blogs were created using Blackboard Vista, a course management software that has a component dedicated to online discussions and blogs. The students engaged both in online public discussions and in private blog entries, sharing their thoughts, their experiences, their struggles, asking each other for help when their own expertise with computers and technology was not enough to solve a problem, expressing their surprise and disbelief that this divide is present geographically within one mile of the school were they are enrolled and so close to some of the most affluent and technically advanced areas in the world: the metro Boston area.

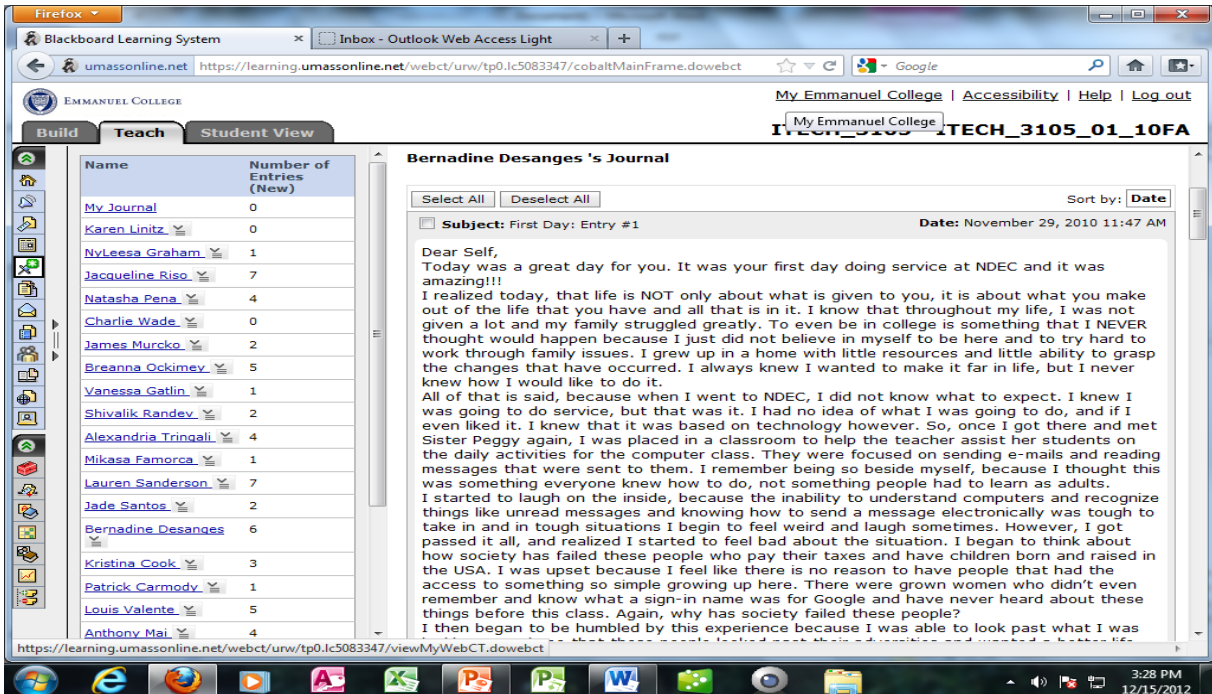
Here are a few “first entries” in private blogs, describing the initial encounters of my students with staff and clients of the centers:



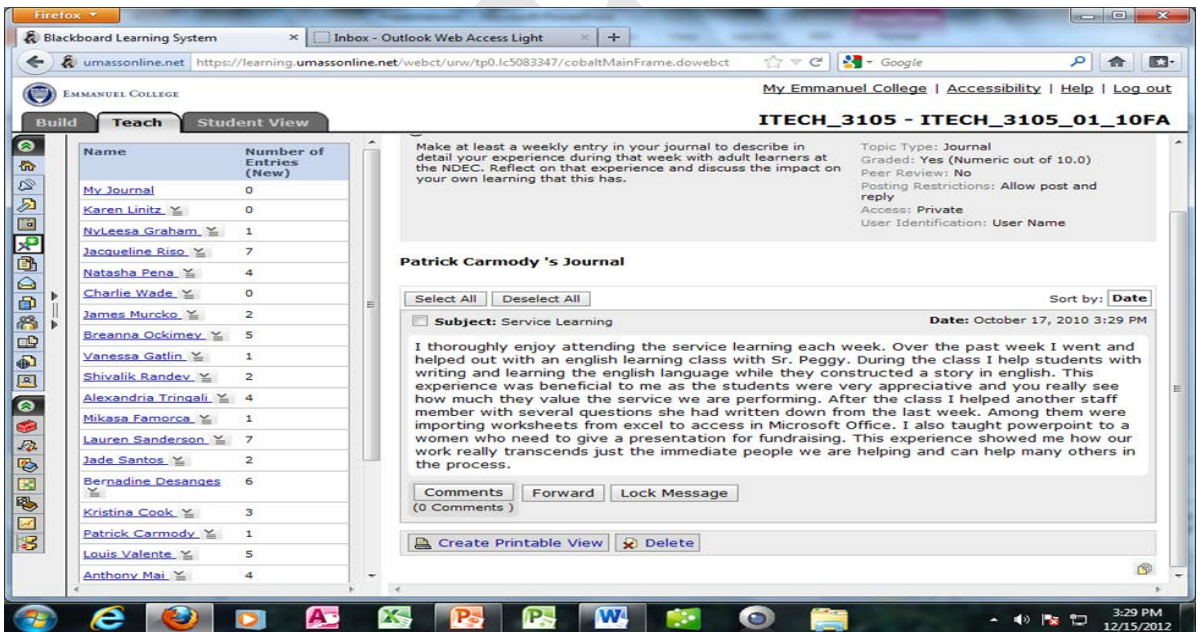


One of the most interesting aspects of this “experiment” was to watch the transformation of my students – the process of reflecting on their own social status, on their own education and future. Some of these students came from very privileged backgrounds, others didn’t. Here are two very different perspectives:





Some of the entries were purely “operational”, making sure that students keep track of the activities they perform and they understand what it takes to run a center like this and what kind of IT expertise is needed and often unavailable to workers in those offices:



ITECH_3105 - ITECH_3105_01_10FA

Name	Number of Entries (New)
My Journal	0
Karen Lintz	0
Nyleesa Graham	1
Jacqueline Riso	7
Natasha Pena	4
Charlie Wade	0
James Murcko	2
Breanna Ockimey	5
Vanessa Gatlin	1
Shivalik Bandev	2
Alexandria Tringali	4
Mikasa Famera	1
Lauren Sanderson	7
Jade Santos	2
Bernadine Desanques	6
Kristina Cook	3
Patrick Carmody	1
Louis Valente	5
Anthony Mai	4

address, city, state, zip, phone number, and email and learn how to utilize the correct capitalization and symbols necessary for formatting. I think most people were good with this except for some who forgot a capital here and there, and didn't realize how to enter onto the next line. I also found some mix up when you say "backspace" and "space" as well as "space" and "enter" so I have been trying to speak more slowly. There also was another student from BU in the class that was also helping, but just one gentleman that was new to the class.

After we completed the formatting, she had us show them how to copy and paste it on the page. And then we went to Google and showed them the Mass Gov site and the different resources that are available there. Like finding a job, or registering to vote. I think this was good because that one website had so much available to them from their own state. This was a good exercise to me too because I am not really familiar with the site because I am not a resident of Massachusetts, and have not really used the site.

Overall, I really liked the environment of the internet cafe because I felt like it was dictated more properly and clearly to the students and they were more engaged in the topics. However, you can tell that unlike the ESOL courses sometimes they may have less technical skills of being able to type properly or being able to use the mouse simultaneously, which you would think sometimes would be the other way around. Also, I thought it was crazy that this gentleman in the class, clearly educated I think he was wearing a college sweatshirt on, and had the mass accent, but just was there to develop computer skills. He actually brought in his laptop that he purchased, and said 'I just want to be able to use the thing' it was brand new, and he really did not even know how to turn it on. Therefore, even a person that could have the resources available to them might need the proper training to be able to use it. It definitely is feeling like a more rewarding process and it opens so much knowledge to them.

Comments Forward Lock Message (0 Comments)

Subject: Tuesday, October 5th 6:00 - 8:00 Date: October 6, 2010 12:44 AM

Today was our second day back to the ESOL 3 course at the NDEC Center. I really feel comfortable there now and Sister Peggy is great, it is nice to walk in and chat with her right before she starts class. Today's class was very interesting and we learned a lot about the

ITECH_3105 - ITECH_3105_01_12FA

Name	Number of Entries (New)
My Journal	0
Demo Student	0
Christine Cuddemi	6
Jenny Konecnik	8
Amanda Sheehan	10
John Dudley	0
Madeline Leahy	7
Sarah Hamilton	6
Robert Cavaliere	6
Andrew Doiq	6
Andres Rocha	7
Stephanie Kagrmanova	2
Jenna Gilreath	4
Academic Technology	0

My first service hours I completed were at ABCD about two weeks ago. When I arrived they informed me that due to legal issues they could not have me doing specific tasks. Instead they had me go through there picture files on a specific computer and move any I thought were bad quality or repeats into another folder. From there they would review them and delete to make more room on the computer. I did not post a journal afterwards because I did not feel there was much to my experience and that it did not impact me in my learning. After leaving ABCD, I was excited to start at NDEC, which I started this past week. I was excited because I wanted to get as much as I could from volunteering and I felt a bit useless just moving pictures into another folder.

When I arrived at NDEC with Amanda, they informed us that we would be helping out in their cyber café class for the afternoon. There were 5 students for that afternoon and the teacher had a small to do list for the day. The teacher then put Amanda on one side of the room and me on the other. That way we could help out both sides without having to go back and forth. I thought it was going to be a piece of cake being that the to do list seemed simple enough and I only had to help three students. This list consisted of opening a word document, change font, change size, underline, bold, copy and paste. But it ended up being much more difficult than I expected. The simplest things we take for granite like changing fonts, took these individuals almost two hours to complete. We talk in class about how people don't know how to do simple things like these on a computer but I don't think it sunk in completely till I went to this cyber café. It has definitely made me think much more about our class discussions and how the world is flat but still not completely. Yes we are all on an even playing field and people have easier access to these resources, like the computer class. But not everyone is able to perform as evenly as one would expect by generalizing the whole world as flat.

Overall, I enjoyed my experience working with the individuals at NDEC and I am excited to continue going to their cyber café and see how it changes week to week.

Comments Forward Lock Message (0 Comments)

Subject: NDECweek 2? Date: November 3, 2012 11:34 AM

1.4 Conclusion

There were several goals to this class experiment:

- Understanding what the digital divide is and how it affects our society;
- Witnessing first-hand the impact of the digital divide on people's lives and careers;
- Taking an active role in understanding and helping with the social issues created by the digital divide;
- Gaining a deeper understanding of the society they live in and taking responsibility for contributing to the well-being of this society;
- Participating in a journey of self-discovery by reflecting onto the experience of meeting, working and helping people who are "victims" of the digital divide;
- Opening their minds to future engagement and work, to becoming responsible citizens.

In the end of the semester, we had several class discussions to evaluate the outcomes and importance of this service learning course. The overwhelming feeling was that students felt much more connected and engaged in this class than their other classes. They felt part of the society and part of the solution to social issues caused by the rapid implementation of technology. More than anything, they felt empowered by their computer education to help others and to understand other segments of our society.

Through this experiment, we extended our classroom out in the world, became integral part of the society, experienced first-hand social issues created by technology and put computer skills to good use to help people in need.

I received several notes expressing the gratitude of the people involved with the three centers. They all spoke very highly of the students who used their time to assist in the classrooms, office and cyber cafés.

Most importantly, many students received individual notes from the people they helped, clients of these centers, people whose lives were transformed by their newly acquired ability to use computers and technology to get jobs and interact with various governmental agencies. This gave my students a boost to realize how important anyone's work is for the benefit of the society and how rewarding could be to help others and see them succeed.

As a new generation joining the workforce in this global society, they have now not only a deeper understanding, but the ability to empathize and the desire to help bridge this digital divide that ultimately affects everyone.

Most important, we became a little community of people trying to help solve a big issue. Most of the students expressed their deep gratitude for being involved in a program like this, for having an opportunity to use their skills to help people in need, and for getting a chance to feel help like valuable members of the society. They continued to serve in these centers beyond the required 15 hours and long after the semester ended.

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Wikipedia, the free online encyclopedia (Global Digital Divide, Digital Divide)

4th International Conference on New Horizons in Education

The comparison of methods used for oud education in Turkish music

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Abstract

Compering of Oud Methods in Oud Instrument's Education of Turkish Music In Turkish music has both voice and instrumental basis, but specifications of instrumental basis has different significancies. In this regard, as being used an instrument of traditional Turkish Music, Oud is an important role in terms of performing. It is important that interplaying between Oud performances in Turkish music and other musical genres which is coming from centuries. People who wanted to know playing Oud with effects of different cultures and geographies made up new methodologies. Here, musical abilities such as ear training and finger techniques has primary role at instrumental performance. In additional, teacher and methods that are make of used are great effect on learning Oud performance. Nowadays, methods are being used for Oud education at institutes such as conservatories and music divisions. In 1910, first Oud method was written by Udi Hoca Ali Salahi Bey in the end of the Ottoman era. After that, method writing custom was spread. The custom are kept by Şerif Muhiddin Targan, Kadri Şençalar, Cinuçen Tanrıkorur, Mutlu Torun, Onur Akdoğu ve Gülçin Yahya Kaçar. In all of this methods; preferences of the writer' musical abilites, knowledge, performing specifications/choices can be seen. In this paper, how current Oud methods are useful and how methods increase performing specifications for students will be comparatively gone over.

Keywords: oud, oud education, oud method, turkish music, music instrument education

1. Introduction

Art of music has always been in the centre of mankind's wordly and other wordly life. In İslam geography it has played an important role from the ezan which is sang in the birth of mankind to the sala which is sang in death of a person. In performing music humanbeings used his voice first. Musicologists accepted human voice as the most perfect instrument. Later, mankind invented instruments.

In the world when compared to other types of music, Turkish music has a different place with the effects of its sound intervals, traditions and the geography in which it appeared. Turkish music depending on its rhythmic and the instruments used has attracted the greatest attention in eastern music category. So the importance of the voice and the instrument performace of Turkish music can't be denied. This has shown the importance of Turkish music education. Since the beginning of Turkish history, Turkish music has used modern music education

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methods together with ‘meşk’ known as traditional music education. In voice and instrument education, traditional method includes listening and repeating while modern method includes listening, repeating, comparing, analyzing and more.

In this context in our article we are going to compare the oud education methods.

2. A Brief History of The Oud

The Arabic origin Oud takes its name from an agalloch tree called el-oud. Turks transformed the word ‘‘Oud’’ to ‘‘Ud’’ in accordance with their language structure. Westerners met this instrument during the Crusades between 11th and 13th centuries and they named it ‘‘lute in English’’ ‘‘luth in French’’ ‘‘laute in German’’ ‘‘liuto in Italian’’. Çinuçen Tanrıkörür stated that although it is an Arabic origin word that does not mean it is an Arabic instrument and he supported his idea with this statement: ‘‘Arabs saw this instrument for the first time in seventh century in Baghdad while turks were playing it who came from khorassan, the main body of the instrument was made of agalloch tree; that's why it was called el-oud, In illetarete period for the arabs who didnt know any other instruments than def and rebab this was an instrument similar to Turkish kopuz Turks had been using since huns.(Tanrıkörür, 2001:176).

In Turkish culture and history there can be found written resources about oud dating back to Uigur civilization. According to the Wang Yeri-Tü's records, a ruler of Uygur civilization, which is accepted as one of the most important resources of that time written in 981, kopuz and oud is an instrument which turks always used to carry with them wherever they went. In *Ravzatlü's- Safa* it is stated that in Horasan during the first immigration the instrumentalists playing ud had an important place in the society. And in the same work, it is explained that the name ‘‘ud’’ was used for the first time during by Muhammed İbn-Harezmi (Gazimihal, 1975: 29). In the Works of El-Kindi, Farabi and Harezmi which were written in 9th and 10th centuries, important information about ud is available. In the same works, how to accord and perform ud and its effect on people are mentioned. Besides, ud is used as a music theory's instrument.

In Selçuklu and Ottoman states Turk İslam musicologists started to write music edvar and risale making use of the resources of the works of ancient Greek musicologists such as Pythagoras, Aristotle and Euclid. In El-Kindi's music books, it is written that Oud belongs to Prophet Adam's 6th generation Lamech, its cord length must be 30 fingers' length (about 35 cm) and its width must be a third of its cord length, it is named as ‘‘Melikül-Alat’’ which means the king of instruments and it is used as a theory instrument (Turabi, 1996: 69-70). In the 10th century, Farabi gave information about how the Oud and kanun were invented and how to accord and perform them in his work of *Kitabül-Musical-Kebir* (Jebrini, 1995: 162-163). In 13th century Safiyuddin Urmevi in his work named *Kitabül-Edvar* studied Oud in three parts; accord styles, arrangement of cords and producing sounds and made use of Oud to talk about the music theory (Uygun, 1999: 214, 224). In the 11th century Ibn Sina explained Oud in his book *Eş-Shifa*, *Cevamül-musiki* part, 6th article, 2nd section. There can be found information about the structure of Oud and its music pitches calculation in this work (Turabi, 2004: 108, 117). In the 15th century in *Jamiül-Elhan* of Abdülkadir Meragi, analyzed Oud and Oud-like instruments (Oud-I Kadim, Oud-I Kamil, *Tuhfetül-Oud*, *Pipa* and *Shahrud*) in terms of structure and performance and he showed the oud plectrum using techniques and ‘‘Terjiat’’ (Sezikli, 2011: 235-252). In Fatih Sultan Mehmet's Palace, the information in *Nekavetül-Edvar* which was written by Udi Abdülaziz, The Son of Meragi are similar to those in his father, Meragi's work (Koç, 2010: 46, 50). From the end of 15th century to 19th, Oud's position in music was almost replaced by tanbur and ney (Tanrıkörür, 2001: 189). That's highly because Ottomans liked tanbur and ney and the effect of spread of ‘‘Mevlevilik’’.

At the end of 19th, Udi Violinist Şakir Pasha made the Oud gain the deserved the value and added it the 6th sore spot. Since this term, Cinuçen Tanrıkorur categorizes Oud instrumentalists into three; classic, fantasist-innovative and marketable style (Tanrıkorur, 2001:189). We can see all the performers from Nevres Bey up to Sherif İçli as the representatives of classical style. Performers of this style follow the way of Tanburi Cemil Bey. The latest representatives of this style have been Cahit Gözkan, Cinuçen Tanrıkorur, Osman Nuri Özpekel, Necati Çelik and Samim Karaca. The representatives of fantasist-novative sytle are Sherif Muhittin Targan, Yorgo Bacanos, Bayram Coşkuner who is in search of different styles, Münir Nurettin Beken, Mehmet Emin Bitmez and Yurdal Tokcan. Oud performers of popular style are Selanikli Ahmet, Kadri Şençalar. Their performance is under the effect of arabesque music which is played in night-clubs. According to Cinuçen Tanrıkorur, the most successful Oud performer of the 20th century is Yorgo Bacanos (Tanrıkorur, 2001). The performance feature of Bacanos is that his right hand can get the sound of “anvil-hammer” sound from the cord and he can use the traditional performance and virtuosity skillfully.

3. Oud Methods

In Turkish Music; the need to write methods with high efficiency levels in order to grow good performers in Oud instrument is occupied after Turkish Music part has been departed from Darü'l-Elhan in 1924. For this reason there has been a breakdown in the system of meshk that adopts a line of conduct the style of transforming master to student and there has been deficiencies in Oud training. In 1974 with the establishment of Turkish Music Conservatory and the other conservatories; some Oud method and learning ways have began to be written. Turkish Music and Oud training between 1924-1974 have been by the help of personel effort and civil establishments. Oud methods which are published in Turkish music history are generally written to gain main technical performance skill. Any methods are written in order to advanced techical performance but, some records and writings that teachers wrote for their special students are used as methods. At this point oud performers can be seen unlucky up to western music instrumentalists but may be lucky up to the other Turkish music instrumentalists. Student who wants to take Oud training must have a very good music hearing because Oud is a pitchness instrument and he/she have to be patient, hard working and have to take lessons from a master who has already trained with traditional performance school. These are the desirable elements for Oud training and without these elements following a method may be thought as useless.

3.1. *Ali Salâhi Bey's Oud Method*

In Turkish music history the first pressed Oud method was written by Udî Ali Salahi Bey by name of “Learning of Oud Method Without Teacher” in 1910. This method was published again with the added studies by name “Oud Teacher with Bound Insert” in 1924. (Targan, 1995:1) In this method simply presentation of Oud, how to hold it, plectrum technic, open string and position studies have took place.

3.2. *Kadri Şençalar's Oud Method*

Kadri Şençalar, after telling the short Turkish music history; says that his main goal for writing Oud method is to teach the youngs in conservatories and radios who wants to learn Oud instrument and also educate them as experts on their instruments. While preparing this method Kadri Şençalar has profitted from notes of Sherif Muhittin Targan's students Cemil Beşir, Ali Salahi, Fahri Kopuz and Sadettin Arel. Method is consisted of three parts and in the 1st chapter the short history of Oud, 2nd chapter the effect of Oud in human being and legendary stories about Oud, information about production and in the 3rd chapter it has been mentioned about scales. Also in all of the three chapters 50 etudes are existed. In these etudes there are open string etudes, finger

etudes and maqamic etudes. At the end of the 3rd chapter Kadri Şençalar has given some of peşrev, saz semaisi, şarkı and taksim notes (Şençalar, 1978).

3.3. Şerif Muhittin Targan's Oud Method

This Oud method is published by Zeki Yılmaz by combining manuscript notes of Şerif Muhittin Targan. Method is consisted of the manuscript notes of Şerif Muhittin Targan between years of 1919-1956. It is composed of three chapters: In the 1st and 2nd chapter information about Oud training and etudes and in the 3rd chapter it has been placed to information about Targan's own style and compositions. In the first chapter it has been mentioned chord, positions, plectrum beats of Oud and etudes related to these units. In the third chapter, Targan, who is also a master violoncellist and has very well information about western music area, tries to teach his style –near to western music- with his own compositions. (Targan, 1995).

3.4. Cinuçen Tanrıkorur's Oud Method

This Oud method wasn't published but the students of Tanrıkorur has made copies for distribution of his own manuscripts. It consisted of 1 to 190th etudes. In 1 to 60th there are string etudes, 60th to 190 there are maqams and the other pitches which are hardly performed. Tanrıkorur has betrayed his own musical terms such as s: means that finger will be in stable finger position, k: shows that the pitch which is in different column must be hold without raising finger. The position numbers are shown with the roman numbers that are written at the beginning of the scale (Tanrıkorur, Unpublished Oud Method).

3.5. Mutlu Torun's Oud Method

Mutlu Torun has prepared this method while he was giving lessons in conservatory. He say that this method especially has been written to make cleanly the voices' pitches. This method consists of information of Oud's structure, tuning, string wiring, maintenance and etudes in three chapters. In the first chapter technics of plectrum, open string etudes and position etudes, main column etude, In the second chapter side columns, In the third chapter style, nuance, modulation and taksim (Torun, 1993).

3.6. Onur Akdoğu's Oud Method

Onur Akdoğu has written his method in the form two books. He wrote second book in memory of Şerif Muhittin Targan. The First Book includes six chapter, The Second Book includes eleven chapter and instrumental compositions. In. The first chapter of first book The history of Oud and the prior knowledge of oud are allocated. 2, 3, 4, 5 and 6th chapter include plectrum technics, position, maqamic and same sound etudes. In the second book, it has been showed the maqams's common and separated using according to 1, 2 3. and the other positions. It also has been described the position's using from 7th position till 12th position by means of etudes for virtuosity (Akdoğu, 1992).

3.7. Gülçin Yahya's Oud Method

In this method Yahya has been addressing to wide music community and aiming at training without the turkish music's style. The method consists of five chapters. it is allocated general informations, seat, holding of oud, concept of position and open string etudes related to oud in first chapter; the position's introduction, main columns, maqam knowledges and the etudes of first position in second chapter; second position, side columns and the using of first and second position together in third chapter; the various performance technics and

enrichments in fourth chapter; the application of performance technics that is trained on the Works in the fifth chapter. In addition to this method, Gülçin Yahya's the book called "Oud Etudes" covering all technics was published (Yahya, 2001).

4. The Comparison of Oud Methods

The comparison of methods which we have advertised above will be done by caring of many points. All of the writers which we have take in hand their methods are master on their instruments and oud performers who knows Turkish music both theoretically and practically. While comparing methods; it has been taken into consideration that the style and tradition of method writer, the technic of using plectrum, positions, and nuances, his virtuosity, agility and feasibility of his technic by students.

4.1. The Comparison of Methods in Terms of Holding and Using Technic of Plectrum

The purpose of holding plectrum in performance of Oud is to achieve clear and fine sound. The level of treble and lowness of sound, its nuances and impetus must be worked through with plectrum. When the methods have been compared according to holding plectrum and technic of usage, it has been understood from his own studies that Targan uses agility frequently and he uses plectrum softly and perfectly. His interest to western music is affective in this situation. Sometimes guitar style can be seen in his plectrum usage. He has used bottom-above plectrum expertly and showed it in his studies. Students which have difficulties using plectrum fastly must use the plectrum exercises in Targan method (Yıldız, 2005:39). In Şençalar, it has been heard hard usage of plectrum and this is seen in study performances. Plectrum exercises of Targan and Şençalar resemble to each other. In Oud plectrum we can hear the traditional plectrum technic and exercises in Tanrıkorur's method. In this performance style, classic ambience of Oud and the style that is near to Tanbur can be seen in study performances. Tanrıkorur has used plectrum above-bottom up to the notes and done the performances with tremolo (Yıldız, 2005:41). Torun, Yahya and Akdoğu's methods resemble to each other because of usage of plectrum technics and sameness of their working conditions.

4.2. The Comparison of Methods in Terms of Using Position

Oud's usage of position area is substantially wide. In this 3,5 octave instrument, from one double string there can be achieved sound with 19 positions. Clear and fine sounds are possible with first 7 positions. Targan's skill about using these 19 positions is admirable by musical environment. This is observed in his compositions such as "Running /Runner Children" and "Caprice". For this reason, Targan's position studies are fairly difficult according to other methods and persons whose perform Targan's position studies are admitted as command of oud positions completely. In Şençalar method, position studies are not complex as Targan's. Şençalar has found sufficient only 7 positions. (Yıldız, 2005:45) Tanrıkorur has written his studies and made usage of positions considering agility, style and traditional performance. In his method he used 7 position too and has showed the other positions as nuances. Yahya, Torun and Akdoğu's position studies resemble Tanrıkorur's technic. It has to be carefully about the usage of maqams as Hüzam, Saba which are performed hardly. The desirable sounds cannot be corresponded in every position. The persons that follow Tanrıkorur's method have written methods considering this. It is very important to use positions in Oud training. It is so hard to get an oud performance better which begins with a wrong position. Style and interpretations of performers may cause differences in usage of positions. On the way of student to be a good Oud performer, every performer creates his own position technic and he makes his own.

4.3. The Comparing Methods in Terms of Oud Style

When we compare the methods in terms of oud style, we see that Udi'(Oud performer)s style reflects to methods after main studies. It may be thought that studies in Targan's oud method are prepared about virtuosity after the main education. Although Targan is a very good performer, because of his western music education; his style is lack of traditionalism. This is so natural. His virtuosity is reflected to his method but spirit of maqams are thought to be as deficient. This method is not demanded for traditional oud performers because of Targan's style. Targan appropriated soloist performance, had'nt participated collective performance and avoided from performing traditional maqams as saba and hüzzam (Yıldız, 2005:42). In his studies he has mostly used his own compositions. Because of the reason Şençalar performed his instrument in places as casino ,his own style of identity is not clear. In Tanrıkörur's method soloist performance is came out but he has a traditional special style. The missed style which is near to tambur is seen in Tanrıkörur's method. Tanrıkörur is known with his resitals and he does not participate to collactive performances. He has used the traditional Ud style expertly in his method. However Torun has used his own style in his method other than Targan and Tanrıkörur. In consequence of Akdoğru is a good researcher other than being a good oud performer, his style is not clear in his method. But Yahya shows in her method that she follows the trace of Tanrıkörur.

5. Conclusion

In this research, oud methods have been analyzed and compared. As the method of Oud performer Hoca Ali Salahi Bey is quite simple we haven't been in need of comparing it with the others. Actually Oud methods are categorized in two groups. In the first category Targan, Şençalar and Akdoğdu methods are close and similar. As for second category Tanrıkörur, Torun and Yahya methods are close and similar. When the studies compared, the western music effect on the first category and the traditional effects on the second category are highly seen. But the common feature of all methods is that in some parts they initially involve an introduction of Oud, a short story of it and the technique of plectrum then they give information about open string and position studies. One of the most important requirement of Oud training is having a musical ability inherently and the other is the work discipline. That is, the higher the capability the higher the contribution of the educator, the work discipline of the pupil, the school or the methods. Besides, together with the contribution of methods, for Oud student listening to skillful Oud performers will make a major contribution to his self-improvement.

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4th International Conference on New Horizons in Education

The concept of professional motivation of business students

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Abstract

This article deals with various ways of formation of the students' professional motivation for a successful professional activity. Modern labour market requires a new concept of professional training of specialists, based on close cooperation with the education institutions as a response to more socially organised production and business.

The article carries out diagnostics of professional-cognitive interest of students of higher educational of Latvia. These results lead to major conclusion, that when a student is aware of a public use of his future profession and when he has all the needed skills and tools, he shows a profound interest and motivation for his field of study and is able to address potential physical and moral difficulties.

Key words: successful professional activity, professional motivation, and conditions of motivation forming, higher education.

1. Main text

INTRODUCTION

This article proves the necessity and deals with various ways of formation of the student's professional motivation for a successful professional activity.

The problem. Modern labor market requires a new concept of professional training of specialists, based on close cooperation with the education market as a response to more socially organised production and business.

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Nowadays, higher sense of responsibility and initiative to learn and use acquired knowledge in new contexts are key conditions for professional and career growth.

In the actual context of harsh competition at the labour market, high professional education is a fundamental part of the entire system of continuous professional education. Professional motivation of a student is an important factor for competitiveness. This problem is amplified in a context of systemic social crisis, as the lack of social protection and economic instability destroys the personal integrity.

Therefore, we consider the education, and especially lifelong learning to be a key factor in improving employment even in time of crisis. Rapid changes in economic environment affecting each economic sector need a constant update of skills, in addition to accumulation of knowledge[†].

The way students choose their university specialization might not be subject of mature reflection and might often be independent of the future profession they want to have.

Therefore, formation of professional motivation requires more supervision, management and intensification.

A critical analysis of conceptual approaches to motivation training identified the following requirements[‡]:

- a) the need to monitor the motivation of students
- b) identification of characteristics of motivated students
- c) the creation of conditions that would facilitate the transfer of external motivation into the

internal one. Implementation of these requirements is an important component to create a motivation mechanism during the professional training of future entrepreneurs. Educational Activity Motivation is a complex system that has both objective and subjective features.

The major features are these: independence, personal development, education, social interaction, and professional activity.

This means that any activity of the student includes a projection of the corresponding subsystems. Domination of each of these subsystems leads not only to a violation of the balance between them, but also to significant distortions in the future.

[†] Serban A. Education and changing labour content implication on employment. – Journal Actual problems of Economics, Vol. 136, No. 10. (Okt., 2012), pp. 536-544. ISSN 1993-6788. Thomson Reuters Scientific

[‡] Hanson E. Marc, *Educational Administration and Organizational Behavior* /Boston, MA: Allyn & Bacon, - 2003. – 384 p.

At the same time, the study period is specific as the main (system-forming) factor (for objective reasons) is the professional formation. Therefore, professional development should provide synchronization, mutual indemnifications, complementarities of all other system components.

The aim of the article is a systemic-structural analysis of the conceptual bases of professional motivation formation and self-determination of students as a basis of competitiveness in the labour market.

To understand the formation of professional motivation, it is necessary to analyse the structure of motivation first. Academic work shows that motivation includes all kinds of motives, namely, needs, interests, goals and preferences. Motivation is the basis of any human behaviour improving the performance. Moreover, motivation puts motives of human behaviour in practice as well as it stimulates one's activities. Shortly, it is an internal, individual personal process behind all behaviour and choices of a person, that is, makes him behave in a particular situation in a certain way. Understanding the motivation process helps also much better understand the person himself and behaviour of others.

Motivation formation needs to consider the following conditions:

1. Social-economic system must be open to human potential and be able to develop it
2. People should be aware that they must faithfully and effectively carry out their work
3. Creative approach to work determines the efficiency of the organization

Motivation is a key factor in education where it influences the study results and achievements. Existing research shows that if students are aware of the usefulness of their professional training, they find themselves motivated to improve results of their achievements[§]. Realizing the real usefulness help students therefore deeper concentrate on their studies as well as increases the level of social activity and has an effective impact on motivation.

Professional motivation as a feature of individual character is a system of goals and needs that motivate student to acquire new knowledge and skills and form a conscious attitude to the profession^{**}.

Furthermore, professional motivation plays the role of compensatory factor. It is particularly visible on an example of a student whose abilities are insufficiently developed but he disposes of a strong professional motivation. This student can achieve more than a very capable student who lacks professional motivation.

[§] Lisovets, N.M. Professional motivation of students as a way of activating learning [electronic resource] / N.M. Lisovets. - Mode of access:<http://www.masters.donntu.edu.ua/2012/iem/temnenko/library/article5.htm>.

^{**} Pinska, O. Professional motivation as a means of improving the efficiency of learning activities students / O. Pinska // Problems of employment and vocational training. - 2009. - Issue 14. - P. 111-115.

Therefore, purposeful formation of professional motivation of students is one of the priority tasks of high school.

In order to determine the professional motivation formation, the case of Professional Higher Education in Latvia will be analyzed using diagnostics of professional-cognitive interest methods. Object of this article are students of first and fourth year of professional Bachelor degree^{††}.

The sample of first year and fourth year of Bachelor degree year students at university is not random. While during the first year, the professional motivation reflects the motives that lead the student continue in the Master Degree with respect to his future profession, in the last year, students start thinking about themselves as of subjects of future professional activity. This show to what extend the issue of professional motivation is important.

The main hypothesis stipulates that professional motivation of students is being formed during the whole duration of training, that is during the four years when a student is to learn the major disciplines of his field and get some practise. This process, influence of course also the vision of the future profession.

A complex of diagnostic methods used in the study consisted of methods aimed at identifying the components of professional motivation^{††}. Structural components of professional motivation are based on two criteria: professional orientation and value orientation. Professional orientation was studied using a modified questionnaire «Cards interests» from E.Rogov and a questionnaire on «Level of awareness about the future profession»^{§§}.

Diagnostics of Value orientation is based on Rokeach's «Value orientation»^{***}, and Sopov's «Morphological test values»^{†††}. The results of the study are presented in table 1.

On average, 44, 27% students in their first year of studies show enough of interest for the study field and that even the practical experience within that field. Corresponding to these criteria, the study field «Business Administration» shows the highest percentage rate (47,5%). We explain these figures by the fact that students of Business Administration have ambitions to create their own business.

^{††} The Latvian higher education system is part of the Bologna process, and, correspondingly, follows the so-called 3-cycle system, where the 1st cycle includes an academic (3 years) or professional (4 years) Bachelor degree, the 2nd cycle includes an academic or professional Master degree and the 3rd cycle includes the Doctoral degree.

^{††} Bodalev A. General psychodiagnostics. / A. Bodalev, V. Stolin. - St. Petersburg. Rech, 2000. – 438 p.

^{§§} Rogov E. Handbook of Psychology: a Textbook. Benefit: in 2 books. - Moscow: VLADOS, 1999. - 384 p.

^{***} Rokeach M. The nature of human values. - NY, Free Press, 1973.

^{†††} Morphological test values. /Ed. by V.F. Sopova's, N.V. Karpusina's. M:2007. - 284 p.

However, there is a significant decline in interest towards profession in the fourth year of study: if for the first year students we observed 40, 27%, for the fourth year students it is only 8,6%. This phenomenon can be explained by the fact that the idealized vision of future profession by first year students was confronted with the reality and rationalized by understanding the realities, risks and financing of a self-owned business.

Table 1. Results of research components of students of Latvian universities professional motivation of professional-cognitive interest (%)

№	INDICATORS	Study programs , study yars							
		Business Administration		Tourism Business		Manager Information systems		Average value	
		I	IV	I	IV	I	IV	I	IV
Professional orientation									
1.	Interest in the chosen specialty	47,5	9,4	43,2	9,8	42,15	11,4	44,27	10,20
2.	Interest in another areas	13,2	24,2	14,6	21,09	14,9	20,1	14,25	21,8
3.	Interest in entrepreneurial activity	20,1	26,8	17,1	22,9	16,42	26,32	17,87	25,34
4.	Lack of sustained interest	13,1	35,1	15,3	32,8	17,68	36,8	15,36	34,9
5.	Awareness of future profession	25,1	76,2	27,3	73,9	27,1	77,3	26,5	75,8
Value orientation									
1.	Importance of profession	21,9	35,6	22,2	35,2	22,8	36	22,3	35,6
2.	Education as a vital value	17,4	37,8	19,1	38,1	15,2	39,3	17,23	38,4
3.	Family life	16,1	17,1	16,7	16,4	15,6	17,2	16,13	16,9
4.	Importance of a creative activity	11,6	13,2	11,5	13,8	11,09	13,8	11,4	13,6
5.	Other priorities	24,3	4,8	26,3	3,9	29,5	4,8	26,7	4,5
6.	Pragmatic type	44,5	56,7	47,5	52,6	47,2	52,1	46,4	53,8
7.	Intermediate type (unspecified)	44,7	17,9	42,2	18,6	43,3	20,2	43,4	18,9
8.	Humanistic type	28,1	33,1	26,9	35,1	23,3	34,1	26,1	34,1

On average, only 17,87% of first year students and 25,34% of fourth year students have an interest in the activities in the field of entrepreneurship, tourism activities and information systems; 14,23 % (1st year students) and 21,8% (4th year students) expressed interest to other branches of knowledge; in 15,36% first years and 34,9% of the graduates-bachelors showed no steady interest to the profession. Students become more aware of their future profession in their final bachelor year (75,8%) compared to the first year of their studies where only 26, 5% are aware of it.

Concerning the value orientation, the morphological test of V.Sopova permits to distinguish two groups of values^{†††}. First group consists of humanistic individual values such as: self-development, spirit growth, social network capacities. The second group consists of the so-called pragmatic components: prestige, wealth, achievements and preservation of identity. This typology is tested on various spheres of life: professional life, training and education, family life, creativity. The obtained results have allowed identifying three main groups of students: pragmatic, humanistic and intermediate type.

The majority of students, namely 46, 4% of the first year students and 53, 8% of the fourth years belong to the pragmatic type. Only 18, 9% of fourth years belong to intermediate type and 26, 1% first year students belongs to a humanistic type of values. The changing value dynamic is a proof of an increasing consideration of various professional motives during the studies as the following number show:

Between the first and the fourth year of study, there is a substantial increase of pragmatic type (from 46, 4% up to 53,8%), decrease of intermediate type (from 43,4% to 18,9%) and an increase of humanistic type of values from 26,1% to 34, 1%.

Furthermore, thanks to the Rokeach's methods, it is therefore possible to identify a value hierarchy at different stage of study processes. The results are the following: 22,3% of first year students and 35, 6% students of the fourth year consider entrepreneurship as an essential quality. If for the first year students the second most important is to be interested in other fields too (26,7%), then for 38,4% of fourth year students it is the education. Family is considered as a life quality by only 16,13% of first year students and by 16,9% fourth year students. 11,4% 1st year students and 13, 6% fourth years consider creativity important. The fourth year students seem to loose interest in other study fields as it show the declining percentage 26, 7% to 4,5%).

The level of professional interest of the fourth year students shows that the longer a student study a specific professional discipline, the readier he is for creation of his own business. However, in the fourth year we observe a growing number of students, whose interest is not linked to their future profession.

At the same time, the preference of student for certain study fields becomes more pragmatic, with the greatest number of "pragmatists" (56,7%) to be find again at the Business Administration.

This phenomenon is probably linked to the fact that many students get specific work experience in the sphere of trade and services, security agencies, modelling etc. during their studies or they get a second diploma.

^{†††} Morphological test values. /Ed. by V.F. Sopova's, N.V. Karpusina's. M:2007. - 284 p.

The result of research based on qualification level of the future specialist in the field of entrepreneurship, tourism activities and information systems conditioned by the level of the formation of professionally-cognitive component, enabled us to identify low, medium and high levels (figure 1).

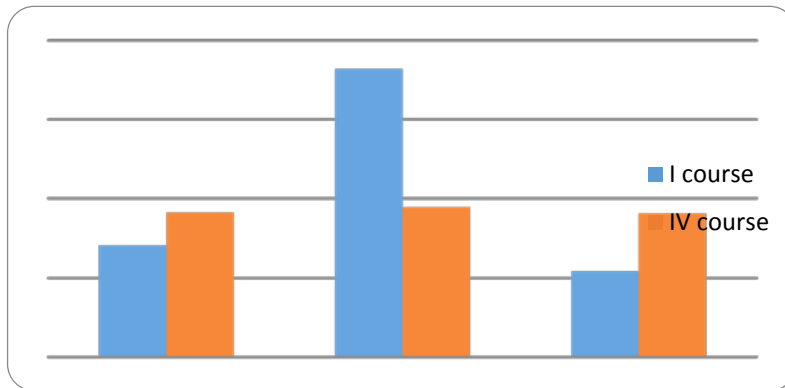


Fig. 1. Levels of formation of professional and educational interest of Latvian universities students (%)

Dynamics of changes in the formation of professional motivation observed on first and fourth year students suggests that in the number of the fourth year students who are at the initial level of the formation of professionally - cognitive interest increased by 8.3%. There is also 34.8% fewer students who belong to the middle level; and the number of students of the high level of professional-cognitive interest increased of 14.7%. During the monitoring of learning achievement, we observed that within the group of expelled students 76,9% showed an initial level of professionally cognitive interest and only 6,3% showed the high one.

These results lead to major conclusion, that when a student is aware of a public use of his future profession and when he has all the needed skills and tools, he shows a profound interest and motivation for his field of study and is able to address potential physical and moral difficulties. There are four main groups of motives: a) responsibility for the performance of professional duties and requirements; b) a desire to improve in the chosen direction; C) innovation at work and organization; d) general altruistic aspirations^{§§§}.

The process of development of self-professional suitability is controversial. The student is sometimes unable to correlate the known properties of the profession with their personal qualities (deficit of self-knowledge) or it is hard for him to choose a profession, which would suit his needs (the lack of professional information)^{****}.

For sustainable professional motivation of students, it is necessary to give students an opportunity to present their abilities and use them in education and professional contexts^{††††}. For this, it is necessary for student

^{§§§} Erohin, S.A. The concept of professional student motivation as a factor of competitiveness in the labor market / Erohin S.A., Nikitin, Y., Nikitina J.V // Jurisprudence. - 2011. - № 1. - P. 20-28

^{****} Podolak, L.G. Psychology High School / L.H.Podolyak, V.I.Yurchenko. - K.: Caravel, 2008. - 352 p.

to take in account: a detailed introduction to the future professional activities and its public importance, knowledge, skills and personal qualities required for such a profession, examples of successful professionals in their field, perspectives of the professional training, his own professional self-esteem. At the same time, the student in question must be able to continue his self-knowledge, self-education, self-improvement and maintain curiosity and "cognitive" psychological climate in the student's academic group ^{††††}. As a result, the students formed a lifetime perspective, identified himself with a successful professional model and can assume the role of fully responsible professional.

For the reasons mentioned above, it is necessary to change the educational process. As practice shows, the use of active methods in higher education is a necessary condition of training highly qualified specialists and produces positive results: formation and systematization of knowledge and skills through their involvement in active educational-cognitive activity, an educational information is transformed into personal knowledge of the students ^{§§§§}.

Conclusions and perspectives of further research:

1. High school should systematically promote the motivation of students to the professional activity by means of professional practice, facilitating positive use of professional experience.

2. There is a growing need practically oriented courses with the capabilities of students to choose as a discipline voluntarily and profile disciplines in accordance with the requirements of the practice, business and the requirements of the employers.

3. For the first year students, it is necessary to develop an educational optimization program of in order to help them in the process of adaptation to training in a higher educational institution, to expand their motivational sphere and to create a professional responsibility.

4. To develop students' high level of motivation for professional achievements is necessary: the organization of training with an appropriate level of difficulty, according to the requirements of the training course, as well as development opportunities for each student; personalization of the learning process.

5. Educational activity of universities should be directed at the formation and enrichment of motives of creative professional activity of the future specialists, the integration of their theoretical training and practical activities.

This study is a base for a further research on development of personality-professional potential of successful professional on the basis of formation of professional motivation of success.

^{††††} Erohin, S.A. The concept of professional student motivation as a factor of competitiveness in the labor market / Erohin S.A., Nikitin, Y., Nikitina J.V // Jurisprudence. - 2011. - № 1. - P. 20-28

^{††††} Hekhauzen H. (2001), Psychology of motivation of reaching, Speech, and available online at http://flogiston.ru/library/hekhauzen_4.

^{§§§§} Tazhikenova S. Interaktive methods of teaching as an innovation in education. – Journal Actual problems of Economics, Vol. 135, No. 9. (Sept., 2012), pp. 500-507. ISSN 1993-6788. Thomson Reuters Scientific

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The Contribution of German Lecturers to Turkish University Reform and Medical Education, During the University Reform of 1933

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Abstract

With the Declaration of the Republic of Turkey in 1923 the importance given to health affairs and medical education was increased. Until recently to declaration, Turkish people who have participated in the Tripoli, Balkan and First World War were threatened with so many diseases. Consequently, a work program was prepared by the Minister of Health, Refik Saydam, as one of the primary activities for the development of health services and for the rehabilitation of medical education as well.

Within the context of the tenth year anniversary of the new Republic in 1933, the University Reform was set as an objective for the realization of the training of future scientists. For this purpose, especially the German scientists, who have been invited to Turkey, played an important role with their significant contributions to university reform process and medical education as well.

With the aforementioned frame, this paper has two aims: primarily, to put forward the reasons behind the university and medical education reform process by applying the volunteer policy transfer concept; secondly, to determine the actors and/or transfer agents and their contributions in this reform and transfer process with an interdisciplinary approach.

Keywords: Medical Education; University Reform of 1933; Lecturer; German Scientists; Policy Transfer; Public Policy

INTRODUCTION

Especially since the beginning of the 20th Century, the nation-states have faced with problems which have affected almost all humanity while the governments were not able to find solutions by themselves (Sobacı, 2009). Because the encountered problems had similar and common properties and some

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pioneering states have produced best learning practices related to the solution of those problems; others had the opportunity of examining the previous, usefull implementations and benefitting from them within a scale from “copying” or “emulation” to “lesson drawing” (Keser, 2012). Within this context, both in developed and developing countires, the decision makers have not only looked for the relevant answers related to the problems within the country but outside as well (Evans, 2004). In order to meet the requirements and to be able to satisfy the expectations of the public, the governments of nation-states have immediately started to look for the models which have proved success and tried to find out the best practices implemented in the other countries. Therefore, especially in most of the developed countries, stressing on the evidence based policy formulation, policy transfer has become a kind of rational choice (Pawson, 2002). Within this frame, the policy transfer analysis is defined as a policy developing theory, which is seeking the significance of the process or set of processes, used to develop organizations, policies and public services at one sector or governance level by using the knowledge of the organizations and/or policies in another sector or governance level (Evans, 2004).

The policy transfer studies, conducted in this context, have initially focused on “voluntary transfer” process, implemented by the rationalistic political actors, testing the potential usefulness of the policies, implemented in some systems into another system, but recently have shifted to “coercive transfer” and “emposition” topic (Dolowitz & Marsh, 1996). In due course the academic literature has focused on different forms of policy transfer. Band-wagoning, convergence, diffusion, emulation and harmonization, learning and lesson drawing are some of the samples of these forms. Without referring to its special form, policy transfer, emulation and lesson drawing refers to the process of using the know-how about the organizations, administrative systems or policies at any time or place, in developing the organizations, administrative systems or policies in another time or place.

By the help of aforementioned briefly conceptualized introduction, this study aims to examine the 1933 University Reform process in Turkey and the rehabilitation of medical education, particularly by focusing on the transfer activities conducted at Medical Faculty of Istanbul University as one of the milestones of revolutionary steps after the decleration of Republic in 1923, with an interdisciplinary approach, since the common dynamics of the process lies at the intersection of different sciences and disciplines such as “political science, public administration and medical history”. Hence, it is expected that this study will provide a significant contribution to the literature as a pioneering paper, which adapts the policy transfer approach of political science and public administration discipline to medical history research area.

The policy transfer analysits typically refer to three different types of policy transfer processes such as “voluntary transfer or lesson drawing”, “transfer by negotiation” and “direct coercive transfer”. The reform process of university and medical education in Turkey, which is the focal point of this study, will be examined within the voluntary transfer concept since there was no infusion, restraint, enforcement, emposition or coercive input from any other state, country or international organization.

In this respect, when the motivations at the background of policy transfer activities are studied, it can be stated that, the voluntary transfer or lesson drawing is a rational and action oriented approach to provide solutions for the public policy problems, which is developed related to one or several of the following reasons:

- (1) Common unsatisfaction related to the current policies due to the poor performance.
- (2) The implementation of a new public policy agenda due to a change in government, ministry or administration of a public organization.

- (3) A political strategy which aims to legitimize the recently achieved results.
- (4) The attempts of political leaders, aiming to improve the items of political agenda to neutralize the political opponents and to provide political allies.

After the above conceptual frame, the two aims of this study can be denoted as follows: First, to put forward the reasons behind the university and medical education reform process by applying the volunteer policy transfer concept; secondly, to determine the actors and/or transfer agents and their contributions in this reform and transfer process with an interdisciplinary approach. The alternative reasons related to the first aim were mentioned before. Related to the latter aim, which are namely the actors playing a significant role in the transfer process, the academicians indicate the following six categories in general (Dolowitz ve Marsh, 1996; Evans, 2004): “(1) Elected Officials, (2) Political Parties, (3) Bureaucrats / Public Servants, (4) Pressure / Interest Groups, (5) Policy Entrepreneurs / Experts, (6) International or Supra-national Organizations”.

The university reform process in Turkey can be examined within the policy transfer concept if the reasons behind and actors in the process are clearly determined. With an historical perspective it can be expressed that, the importance given to health service and medical education has significantly increased with the declaration of the republic in 1923. Both the improvement of public health services and medical education as well were two of the primary tasks, as part of a development program prepared by Refik Saydam, who was the Minister of Health, due to the threatening effect of numerous diseases that the Turkish people, being participated in Tripoli War, War in the Balcans, Ist World War and the Independence War, have faced with.

In this sense, one of the utmost important reforms achieved by Mustafa Kemal Atatürk was definitely the “University Reform of 1933” after the foundation of the new Republic. Atatürk, even in the years of the Independence War has planned the reforms to be conducted in training, education and culture areas. Within this context, the aim of University Reform, which was an important milestone in Turkish Cultural History, was to train and educate the scientists and capable officials to satisfy the requirements of the just founded Republic. The objective was set as to carry out the science level of the country to the contemporary civilization level. For that purpose, especially transferring the German scientists to Turkey and having their contribution to medical education, as implemented in other areas also had a major role. If these aims are examined in detail, it can be stated that the motivative reasons, lying behind the policy transfer process related to the Medical Education Reform in Turkey, were first “the common unsatisfaction of leaders, officials and the public, related to the policies implemented especially during the Balkan War and the Ist World War”, and secondly “new policy agenda aimed to be implemented in relation with the administrative system change” after the foundation of a new state and declaration of a new regym as republic.

After introducing the reasons behind the conducted policy transfer as above, it is required to examine the historical process related to the university and medical education reform, to be able to determine the actors playing a significant role in the transfer process.

2. THE HISTORICAL COURSE OF UNIVERSITY REFORM PROCESS

The modernization process of university level education during the Republic period has started with the abolishment of the Darülfünun (a kind of university and/or house of science during the Ottoman Empire period) and constitution of Istanbul University instead (Namal, 2012). Atatürk has preferred to manage the agenda within a “frame of culture program” as expected from the young Republic of Turkey (Aktar, 1994). To that end, during the preparation stage of University Reform Process, primarily Prof. Albert Malche, rector of Geneva University of Switzerland, was invited to Turkey and requested to prepare a report related to the matter. Malche, who had come to Turkey in 1932, prepared a report after his investigations and submitted to the authorized officials on 29th of May 1932 (Widmann, 1973; Terzioğlu, 1997).

The aforementioned report of Prof. Malche consisted of 5 chapters and 34 articles (Aktar, 1994). Prof. Malche stated in his report that, the practical implementations were insufficient, lectures were based on memorization and conference type transfer of encyclopedic information, the lecture methodology was out of date (Widmann, 1973; Kuruyazıcı, 1999; Namal & Karakök, 2011), the amount of scientific publishings written in Turkish was insufficient, the students were not able to understand the foreign scientific resources due to the lack of foreign language level they had, almost only the knowledge that the students had was made up of the lecture notes (Hirsch, 1998) and the salaries paid to the istructers were considerably poor (Widmann, 1973; Aktar, 1994). Furthermore, the medical library was also substantially needy even if it was located in a rather large hall although the law library was really superb. The mentioned report was completed as “the Darülfünun issue is the intellectual, moral and even future-proof matter of Turkey” (Hirsch, 1998).

Another fundamental topic stated in Malche report was about transferring sufficient instructors from European Universities to Istanbul University which would be founded shortly. For this reason, with Hitler’s coming into power in Germany, Prof. Malche tried to import his son in law, Prof. Dr. Philipp Schwartz, immigrated to Switzerland from Germany and other professors leaving from Germany. Consequently, as the representative of the “Notgemeinschaft Deutscher Wissenschaftler im Ausland (Emergency Assistance Organization for German Scientists)”, established in Zurich, Prof. Dr. Schwartz arrived to Istanbul on the 5th of July 1933. Upon arriving to Ankara on 6th of July 1933, he met with Dr. Reşit Galip who was the Minister of Education. After a mutual meeting a protocol was signed concerning the transfer of 30 professors from Germany also including the remuneration package to be implemented for them (Terzioğlu, 1997; Taşdemirci, 2005).

According to the respective protocol, the prospective scientists to be transferred would learn Turkish in a short while and would give their lectures in Turkish. Turkish associate professors would be trained in 5-10 years and they would take over the professorial chairs from the foreign scientists. However this projection was not realized since some of the German scientists could not be kept as much time as planned. Furthermore, Turkish associate professors, expected to take over the chairs, could not be gotten to stay at the university as full time instructors as well. Despite all these deficits, it can be stated that the development, efficiency and productivity of the University were better than the period of Darülfünun (Namal, 2012).

Referring back to the respective meeting between Schwartz and Galip, the negotiation went better than Schwartz has initially expected. Schwartz stated in his report sent to Zürich that: Nicht drei sondern dreissig (Not three but thirty). Following day (on the 7th of July 1933) Schwartz met with the Minister of Health, Refik Saydam and negotiated about the instructors those would constitute

the core staff of the Medical Faculty of Ankara University and then returned to Switzerland. Within the following time frame, Schwartz has contacted with professors in Frankfurt, Berlin, London and Paris and received their approval about coming to Turkey even from the professors as Kantarowicz, Dessauer and Kessler, those were under arrest in Germany (Terzioğlu, 1997).

After his above efforts in Europe, Schwartz returned to Turkey accompanied by Prof. Dr. Nissen on the 25th of July 1933 and met with Dr. Reşit Galip again. Dr. Reşit Galip accepted the instructor list proposed by Schwartz and Nissen and requested them to prepare a notion about the possible problems to be faced with during the relocation of Medical Faculty from Haydarpasha to Beyazit. As part of the related subsequent efforts, based on the recommendations of Schwartz, mathematician Richard Courant, physicist Max Born and James Franck, instructors of Göttingen University, arrived to Istanbul and after an investigation for a couple of weeks concerning the restructuring issue of Science Faculty, prepared a report on the matter and returned to their countries (Terzioğlu, 1997).

Upon completion of all these process, Prof. Dr. Schwartz also returned to Zürich. The German instructors to be transferred to Turkey signed their contracts in the presence of Turkish Ambassador Hüseyin Cemal and Prof. Malche. After the signature procedure, a group of 150 people consisted of the instructors, their assistants and families arrived to Istanbul in October 1933. After their arrival, the relocation of Medical Faculty from Haydarpasha to its new installations in the European side was completed and education was started on the 19th of November 1933. Between the years 1933-1945, 16 of those professors coming from Germany have fulfilled director positions in different institutes and clinics (Terzioğlu, 1997).

The Minister of National Education during the period, Dr. Reşit Galip stated that the academic staff of the newly constituted university would be provided from three different resources: First category was comprised of 73 previous professors of Darülfünun those would be transferred to the new university; second category would consist the young Turkish instructors, had been sent to European countries for education and expected to return as associate professors in a few years; finally the third category included the professors transferred from Germany (Widmann, 1973; Kuruyazıcı, 1999; Namal, 2012; Taşdemirci, 2005).

3. THE PROMINENT SCIENTISTS OF THE UNIVERSITY REFORM PROCESS AND THEIR CONTRIBUTIONS

The number of lecturers distributed to the faculties were not equal and/or balanced when the University was initially constituted. The number of Medical Faculty and Science Faculty associate staff was more than the members of Law Faculty and the Faculty of Arts (Widmann, 1973).

In spite of the unbalanced or insufficient number of faculty staff, the contributions of the foreign professors can not be underestimated. Two of the foreigner scientists employed in the Medical Faculty with the 1933 University reform, operator Rudolf Nissen (5 Sep.1896- 22 Jan.1981) and pathologist Schwartz (1894-1977) pioneered the dialogue execution activities with the Turkish Government within this context. Eventually, Nissen conducted the first “pneumonectomy” operation in the world in 1931 and became the director of the 1st Surgery Clinic of Istanbul University when he was only 37 years old. He has contributed to Turkish science history with the techniques originated by him, with the surgeons he has trained and with 62 published scientific

articles in Turkish (Namal, 2012). According to Schwartz, especially Prof. Nissen who has developed important surgery techniques, Prof. Wilhelm Gustav Liepmann (1878-1939) with his contributions in gynecology, and Prof. Joseph Igersheimer (1878-1965) with his efficacy in ophthalmology, played significant roles in determining the destiny of the University Reform Process in Turkey. The contributions of Liepmann to gynecology and other medical disciplines with his papers during the symposiums and conferences and two lecture books for the medical faculty students can also be stated among those milestones of the respective university reform process (Widmann, 1973).

Another important scientist Friedrich Dessauer (19 Jul. 1881-16 Feb. 1963), who came from Frankfurt University in 1934 has conducted the activities of Radiotherapy Institute. He had important contributions in the establishment of rontgen devices (Widmann, 1973).

At the Dentistry Faculty as part of the newly constituted Medical Faculty, Alfred Kantorowicz (18 Jun. 1880-6 Mar. 1962), who was detained when he was at Bonn University and then arrived to Turkey took part at the prothesis department and became the director responsible for the lectures following the year 1935 (Widmann, 1973). Upon his arrival the education period was extended from three years to four years, the number of practical lectures were increased, a suitable environment for experimental implementations was prepared and the research thesis were submitted for the first time by organizing scientific projects. Prof. Kantorowicz was not interested in the development of his colleagues only at the University, but also the ones in Istanbul and all around the country by organizing scientific course programs for them (Öncel, 2001).

Among those considerable contributors to the University Reform, one of the significant names was Richard Edler von Mises (19 Apr. 1883-14 Jul. 1953) who took part at the Faculty of Science. He was one of the prominent names of applied mathematics and a worldwide authority in probability calculus. According to Nissen he was the most experienced and the most respected among the foreigner professors. After instructing several years in Turkey, he accepted the invitation from Harvard University and moved to United States in 1939 (Widmann, 1973; Namal, 2012).

One of the new formations established during the university reform was Astronomy Institute. When the institute was first constituted by Erwin Finlay Freundlich (29 May. 1885-24 Jul. 1964) there was neither a single device nor an observation equipment and even worse there was no single literature in Turkish. All these handicaps were overcome by Freundlich in a short period with the significant support of the government. As a result the "Star Observation House" located in the University yard was completed with the efforts of Freundlich in a short time (Widmann, 1973).

Another scientist, Prof. Fritz Arndt (1885-1969) was employed in General Chemistry Institute. Due to the heavy work load of the institute, Prof. Hans Kroepelin, who had come from Braunschweig, took over some of Arndt's responsibilities particularly related to the lateral branch students (Widmann, 1973).

In regard to the Faculty of Arts, Leo Spitzer (1887-1960) was one of the foremost instructors. He played an active role in the institution of process of Foreign Languages School of Istanbul University in 1933 and fulfilled the directorate post (Namal, 2012).

One of the important milestones of Turkish reform process and university reform within this frame was of course conducted in the justice system. As part of this process, the jurists such as Ernst Hirsch (1902-1985) and Andreas Bertalan Schwartz (1886-1953) were assigned to the explanation of the Swedish Civil Code and Italian Criminal Law to Turkish public and to the academic society (Kuruyazıcı, 1999). Hirsch, who was born in 1902, came from Frankfurt to Istanbul in 1933. Hirsch, who has started to give his lectures in Ankara after 1943, exerted most of his scientific efforts for Turkey, the country which had enabled him to immigrate. “Ord. Prof. Dr. Ernst Hirsch’e Armağan (Presentation to Distinguished Prof. Dr. Ernst Hirsch)”, a publishing ascribed to Hirsch, refers to Hirsch as follows: “He has played a significant role in training the jurists of the country with his outstanding teaching abilities as well as his productive scientific studies”. He had essential contributions in the constitution process of Turkish Trade Law, Turkish Law of Royalty Rights and the Law of Autonomy (1946) (Namal, 2012). Besides these he provided crucial contribution in the legislation of “Atatürk Law” which enacts the preservation of the founder of the Turkish Republic and his monuments with some law sanctions (Pekin, 1998).

Related to the Economics and Financial sciences, Fritz Neumark (1900-1991) was assigned to transmit his knowledge (Kuruyazıcı, 1999). He has conducted his lectures in Turkish for Turkish students and published scientific publications in Turkish for them. His contributions to Turkish Tax Reform in 1950 can be cited as one of his significant efforts (Widmann, 1973).

Within the historical course examined so far, it can be determined that all the reform process was initiated and conducted with the own initiatives of the leaders ruling the country; thus actualized within the frame of voluntary policy transfer, during the Turkish University Reform process in general and medical education reform process in particular. Therefore, the actors playing a significant role in this transfer process can be cited primarily “starting from the founder of Turkish Republic and president of the time Atatürk, than Refik Saydam (the Minister of Health) and Reşit Galip (the Minister of National Education), and in addition to these leaders, corresponding public officials/elected officials, the government, bureaucrats/public servants”; secondly Prof. Albert Malche with a prominent role who was initially invited from Switzerland for an investigation on the University system and the notable German scientists following Malche’s efforts by participating in the reform process as policy transfer agents. Apart from these aforementioned actors, it is determined that other possible role players of policy transfer literature such as “Pressure / Interest Groups, Policy Entrepreneurs / Experts and International or Supra-national Organizations” have not played any significant role during the reform process.

4. UNIVERSITY REFORM’S CONTRIBUTIONS TO HIGHER EDUCATION

Yabancı bilim adamlarının, geri kalmış olan eğitim ve öğretim programları ile yöntemlerinin, çağın gereklerine uygun hale getirilmesinde önemli katkıları olmuştur. Derslerin ansiklopedik bilgi şeklinde değil de günlük konuşma şeklinde anlatılması, öğrenci ile karşılıklı soru cevap şeklinde interaktif bir eğitimin yapılmasının sağlanması, pratik uygulamalar ve seminer çalışmalarının eğitimde yerlerini almaları gibi konularda hizmetleri olmuştur (Namal, 2012).

During the university reform process one of the most problematic matters was about the lecture books both in quality and the quantity as well. With the admirable efforts of Turkish and foreign lecturers both faces as of quality and quantity of the problem was solved. During the early years of the reform period both the Turkish and foreign istructers tried to translate the lecture notes to

Turkish language. After the first three year stage they have concentrated on the scientific researches and publications. Among the respective foreign lecturers 80% have published at least one copyrighted book and 60% have published at least two. Concerning the instructors at the Medical Faculty, most of them have published a variable number of copyrighted books between 2-5 and some of them even more than that (Namal, 2012).

Another notable contribution of the foreign lecturers was performed on the development of the existing libraries and on the establishment of new ones at the emerging faculties or institutes. They have prepared a list of periodical journals being published in Europe and proposed them to be bought for the libraries. All these efforts have received affirmative feedback and support from Turkish government and various foreign publications written in German, English and French were brought to the libraries in a considerably short time. It is stated that some instructors such as Ernst Hirsch and his assistants have worked like a librarian public officer during the registration and classification stage (Namal, 2012).

As indicated by Prof. Dr. Philipp Schwartz, despite the insufficient amount of lecture materials and equipment, the classes were kept sustainable and he stated that: “we had provided our students to learn the basic principals of Physiology, Biochemistry, Histology, Microbiology and Pathology by implementing practical exercises; each of the students had the opportunity of conducting at least four autopsies before their exams. We educated and trained our assistants” (Widmann, 1973).

Ataturk also focused sensitively on the University reform process. During this reform period, “university conferences” open to public and “a university week in each city” implementations were activated. Respective foreign scientists also took part in these conferences in an active manner (Namal, 2012). Among those, the university conferences conducted by Prof. Winterstein have a considerable importance (Kahya, 2005).

The periodical scientific journals such as Journal of Law Faculty and Journal of Science Faculty (1935), Romanology Journal (1937), Journal of Medical Faculty (1938), Journal of the Faculty of Economics (1939) (Namal, 2005; Taşdemirci, 2005), Journal of Psychology and Pedagogy (1940) were also published with the contributions of foreign scientists (Namal, 2012).

Those scientists, most of them came from Germany, have also contributed to the process of changing the academic titles after the 19th of November 1933 as follows: the former title of “University Emin” was changed as “rector”, the former title of “Faculty Reis” was changed as “Dean”, the title of “profesör muavini” which means deputy professor was changed as “Doçent (associate professor)” (Taşdemirci, 2005).

Due to their successful scientific researches and contributions to Turkish University reform, Richard von Mises (Faculty of Science-Mathematics), Fritz Arndt (Faculty of Science-Chemistry), Curt Kosswig (Faculty of Science-Biology), Fritz Neumark (Faculty of Economics), Gustav Oelsner (Istanbul Technical University) were awarded with honor doctorate title (Widmann, 1973).

The contributions of the Turkish instructors, trained at the Gulhane Military Medical Academy, which is one of the pioneering institutions of post graduate medical education in Turkey, should also be indicated besides the German lecturers. Among those scientists, Tevfik Sağlam, Hulusi Behçet, Akil Muhtar Özden and Mazhar Osman were some of the significant instructors contributed

to Turkish higher education activities (Harmankaya, 2001). Within the university reform process, Distinguished (Ord.) Prof. Dr. Brigadier General Ali Tevfik Salim Sağlam (1882-1963) was elected as the Chair of Distinguished Professorship at the 2nd Internal Medical Diseases Clinic of Medical Faculty and as the Dean of Faculty; Distinguished (Ord.) Prof. Dr. Hulusi Behçet (1889-1948) as the Chair of Dermatology and Syph Diseases of the Medical Faculty and started to publish the dermatology journal named as “Dermatologic Diseases and Syph Clinic Arcives” (Ataç, 2001).

Thus far the study has focused on the contributions of the German scientists, but besides them, it is known that scientists coming from other countries of Europe have also participated to University Reform Process in Turkey, having been employed at the Medical Faculty of Istanbul University. Although the dominating number of German scientists was not sympathically accepted by French side, the answer sent to the France by the Ministry of Education was as follows: “The aim of the university is not to serve for German or French science, only to serve for the science”. This approach was welcomed by the German scientists. As a result, it was decided to have worldwide famous professors Sauerbruch and Albert Einstein as guest instructors at Istanbul University twice a year. As a result of all these efforts during the University Reform conducted by the contributions of Turkish, German and other European academicians, the education levels of Turkish Universities were promoted to the levels of leading European Universities (Terzioğlu, 1997).

During the aforementioned reform process, some of the scientists coming from Germany in 1933 were converted to Turkish citizenship and serve for the University until they die in Istanbul. For example Prof. Dr. E. Frank has refused the invitations he received from US universities due to his loyalty to Turkey. When the reason of his choice was asked, he replied as follows: “During the days in which I was under the painfull embarrassment of being dismissed from my own country, only Turkey welcomed me with open arms, this soil is my homeland since than and I can not deceive for the blessing presented to me” (Terzioğlu, 1997). Gerhard Kessler, another scientist served for the universiry reform in Turkey stated about his admittion to Turkey as follows: “I will forever feel grateful to Turkish Nation, which has a noble chevalier spirit, because they have presented me such a possibility” (Namal & Karakök, 2011). Kessler has gone over the existing problems during various lectures, conferences, articles and interviews. He was personally studied on some significant problems such as the value matter of money, the introduction of “Ozel Idare”s (a kind of special local administrative body), cooperative/union systems in some sectors, pricing system, syndication and housing policies (Widmann, 1973).

CONCLUSION

In line with the above mentioned historical perspective, it can be stated that a breakthrough in Turkish higher education was achieved by the efforts of Ataturk, during the University Reform process. In realizing this reform, particularly the contributions of scientists comming from Germany can not be ignored. With the establishment of Istanbul University instead of its predecessor, named as Darülfünun which was a higher education institution of Otoman type, the significant scientists of the time, most of all were Germans, took part as instructors at the newly emerged Faculties of Medicine, Science, Arts, Law and Economics. The quantity and quality of the lecture books used in education and scientific publications have rapidly increased after the University Reform. The methodology and techniques used in education process were also changed significantly. Especially the active participation of the students to the learning process was achieved instead of memorizing

the encyclopedic information. Although the process was resulted with productive outcomes, some of the scientists have left Turkey upon receiving invitations from US by the time and some others returned to their own countries (Namal, 2012).

To sum up, the contributions of the foreign lecturers, came to Turkey during the University Reform can not be excluded related to the training and education activities. Atatürk, as being the foremost motivative actor behind this transfer process, summarized the improvements gained by the University reform as follows: “The scientific and executive autonomy was achieved for the universities. The academic career route was organized by law. Universities were given the opportunity to be administrated by supplementary budget system. Their budgets were improved to a level which can not be compared with the former status. Academic lecturers in every scientific branch were trained. The tools for research and development were increased” (Namal & Karakök, 2011).

In conclusion, as possibly conducted in many disciplines, the process related to the policy formulation and carrying out the reforms concerning the university education in general and medical education in particular, can be examined through a “public policy transfer perspective”. Related to the issue, the process activated in Turkey also presents a good case to be studied. When the process is examined through this approach, it can be stated that, the policy transfer process related to the university reform and medical education in Turkey was conducted with a voluntary policy transfer perspective as the details were explained above. The foremost reasons behind this transfer were “the unsatisfaction of the administrators and leaders of the time, related to the low performance of the former policies and organizations within their interest area, and looking for best learning practices”. Related to the second aim of the study, it is determined that, “the political officials formulating the state policies, the bureaucrats performing the public service according to the formulated policies and the foreign academicians transferred primarily from Germany and from other European countries for the purpose of transferring the best practices implemented outside the country” were the principal actors playing significant role as the transfer agents during this reform process.

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The development of the coordination between 6-7 year-old pupils' vocal apparatus and musical hearing in the process of singing: Latvian music teacher's opinion

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Abstract

The problem of the development of the coordination between 6-7 year-old children's vocal apparatus and musical hearing is topical, because before the age of 6, the vocal apparatus of children has not yet sufficiently developed and sounds are formed due to the vibrations of the edges of vocal cords.

The aim of the research was to find out whether in their pedagogical activity music teachers apply individual learning strategies for teaching children, whether such strategies are necessary for the work with children and which learning strategies are the most effective for the development of the coordination between the vocal apparatus and musical hearing in the process of singing. More than 50 music teachers working with 6-7 year-old children in kindergartens, music schools and general education schools participated in the questionnaire survey.

The research results provide information regarding the music teachers' understanding of the problems of the coordination between 6-7 year-old children's vocal apparatus and musical hearing and reveal their opinions concerning the possibilities to resolve these problems. On the basis of the questionnaire survey results, the recommendations for resolving the problems of the coordination between the vocal apparatus and musical hearing have been worked out.

Keywords: vocal apparatus, musical hearing, development of coordination, questionnaire survey, singing process.

1. INTRODUCTION

In the process of acquiring skills of singing, the central problem appears to be the development of the coordination between musical hearing and voice, because singing is a complicated process of sound forming and the coordination between hearing and voice or correlation between precise intoning and aural sense is important for this process.

Thurman and Welch (2000) have proved that at the age of 7, 30% of children cannot intone precisely, and less than 5% of them cannot do it even when they are 11 years old. The scholars point out that the age of 7 is a very essential period for vocal development. According to Menabeni (1987), at the age of 6, a permanent formation of vocal muscles is already starting to develop: consequently, we have to start developing the coordination between a child's vocal apparatus and musical hearing, because the age when the vocal muscles start developing is the most favorable time for teaching a child to sing precisely. The way the child has learnt to coordinate his voice

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will determine how he is going to sing in future, and to re-teach him to correctly coordinate his singing by ear will be very difficult.

Harris (2009) notes that it is not possible to develop one model of the development of the coordination between the vocal apparatus and musical hearing that would be suitable for all children, because each child develops individually. Naturally, there are certain physiological peculiarities that are common for all 6-7-year-old children, but it is vital to realize that in order to develop the coordination successfully we have to work individually with each child, because the development of coordination involves the activity of both musical hearing and vocal apparatus.

To prove the importance and topicality of individual learning strategy for 6-7-year-old children when developing the coordination between their vocal apparatus and musical hearing in the process of mastering singing, a questionnaire survey among Latvian music teachers has been conducted. 71 music teachers working with 6-7-year-old children in kindergartens, music schools and general education schools participated in the survey.

The research aim is to get and clarify the Latvian music teachers' opinions concerning the need for an individual learning strategy at developing the coordination between 6-7-year-old pupils' vocal apparatus and musical hearing in the process of singing.

2. METHOD AND PARTICIPANTS

To get the Latvian music teachers' opinion about the need for an individual learning strategy at developing the coordination between 6-7-year-old pupils' vocal apparatus and musical hearing in the process of singing a questionnaire survey method was applied.

The teachers meeting the formal requirements for music teachers' education and having music as their main speciality participated in this survey. 40 (56.3%) teachers had a bachelor's degree, 31 (43.7%) – a master's degree. The age of the respondents was within the limits of 25 – 75, the average age being – 46 years. Standard deviation of the average age is 10 years.

Table 14. Respondents age groups

Age group	Frequency	Percent	Cumulative Percent
25-35	12	16,9	16,9
36-45	21	29,6	46,5
46-55	26	36,6	83,1
56-75	12	16,9	100,0

Teachers' experience of pedagogical service fluctuates between 4 – 47 years, and more than a half of respondents are older than 24. The average length of pedagogical service experience working with 6-7-year-old children is from 18 to 45 years, and for more than a half of respondents it exceeds 15 years.

Table 15. Respondents experience of pedagogical service

Pedagogical service group	Frequency	Percent	Cumulative Percent
4-14	19	26,8	26,8
15-24	22	31,0	57,7
25-30	12	16,9	74,6
31-47	18	25,4	100,0

Latvian music teachers' survey consisted of four indicator groups where primary data were obtained by assessing respondents' answers according to Likert scale :

- indicators of cooperation (17);
- indicators of teaching (15);
- indicators of learning (25);
- indicators of lesson organization (8).

The secondary data were obtained by dimension reduction, making use of a factor analysis. The "Statistical Package for the Social Science (SPSS), version 19.0 for Windows, was used for data processing, statistic analysis and presentation of the research results.

In order to analyze the structure of factors in indicator groups of the survey, the research factor analysis was made, extracting the factors by the method of principal components and further application of Varimax rotation method (Extraction Method: Principal Component analysis; Rotation Method: Varmix with Kaiser Normalization). Varmix is an orthogonal rotation where the variables with great factor loading are minimized. The method is mostly used to simplify the interpretation of factors.

The criterion of sampling adequacy – (Kaiser-Meyer-Olkin Measure of Sampling Adequacy – KMO) – which in different question blocks of the survey fluctuates within the range of 0.634 (Indicators of lesson organization) to 0.813 (indicators of teaching) shows that the use of factor analysis is desirable.

3. THE RESULTS OBTAINED

The structure of factors of separate question blocks in the survey is represented in Table 3 – 7.

The tables show what percent of summary dispersion characterizes each of the extracted factors, and also the indicators having the greatest factor loading among the extracted factors. The aggregate indicators of the extracted factors are obtained by summing up the results of the respective indicators.

Table 16. Indicator of Cooperation

Factors		Component			
		1	2	3	4
A teacher's awareness about peculiarities of voice apparatus and musical hearing and problems of coordination	B16	0,838			
	B14	0,796			
	B8	0,778			
	B6	0,773			
	B12	0,772			
	B10	0,697			
Attention to development of coordination for each pupil	B5		0,881		
	B4		0,811		
	B2		0,775		
	B3		0,691		
	B1		0,531		
Individual work with pupils	B9			0,909	
	B13			0,906	
	B17			0,857	
Frequent encountering with coordination development problems	B7				0,898
	B15				0,896
	B11				0,834
% of Variance		22,7%	18,9%	15,8%	14,6%

Table 17. Indicators of Teaching

Factors		Component		
		1	2	3
Individual work with pupils	C4	0,773		
	C5	0,722		
	C1	0,640		
	C9	0,635		
	C2	0,624		
	C3	0,617	0,403	
	C12		0,648	
	C15		0,648	
A teacher's work	C14		0,601	
	C10		0,565	
	C13		0,540	0,438
	C6		0,524	
Teaching/learning process	C1		0,424	
	C7			0,856
	C8			0,717
% of Variance		23,2%	18,3%	12,6%

Table 18. Indicators of Learning

Factors		Component			
		1	2	3	4
A teacher's attention	D25	0,720			
	D18	0,717			
	D5	0,673			
	D24	0,667			
	D23	0,647			
	D6	0,484			
	D17	0,478			

	D7	0,685		
	D1	0,674		
	D2	0,614		
A pupil's activity	D4	0,513		
	D8	0,513		
	D16	0,443		
	D10	0,438		
	D21		0,792	
A teacher's activity	D22		0,659	
	D11		0,575	
	D14		0,531	
	D13			0,708
Development of coordination	D12			0,624
	D19			0,552
	D15			0,517
	% of Variance	15,1%	14,1%	10,6%
				8,9%

Table 19. Indicators of Lesson Organization

Factors		Component		
		1	2	3
Organisation of singing process	E7	0,784		
	E3	0,754		
	E8	0,739		
Self-control during singing	E5		0,772	
	E1		0,760	
	E4		0,524	
Listening in one's own singing	E6			0,863
	E2			0,705
	% of Variance	23,5%	19,3%	16,2%

For further interpretation, standardization of factor assessments was done. Standardized assessments are normally distributed with the mean value 0 and dispersion which is equal to 1 (-N (0.1)). Standardized assessments were distributed according to the normal distribution law. Standardization of factor values allows classifying respondents within each of the factors depending on their indicators, which can be higher or lower than the mean value.

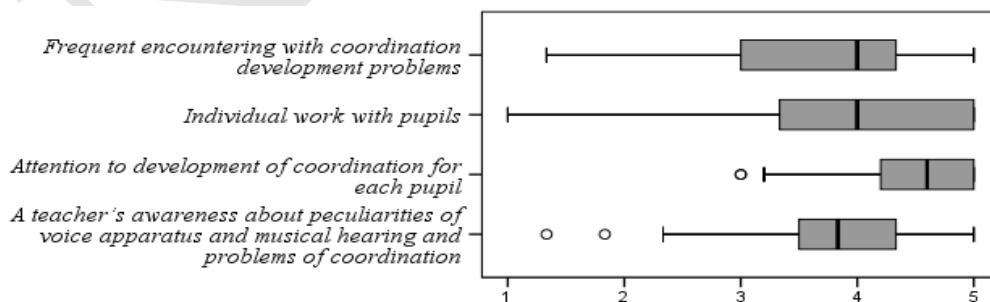


Fig. 1. Factors of Cooperation (Boxplot)

Factors *A teacher's awareness about peculiarities of vocal apparatus and musical hearing and problems of coordination* and *Frequent encountering with coordination development problems* are distributed according to the law of normality (Kolmagorov – Smirnov test shows the level of statistic significance Asymp. Sig. (2-tailed) >0.05). The distribution of factors *Attention to development of coordination for each pupil* and *Individual work with pupils* differs significantly from the normal distribution considerably differs from the normal distribution.

Numerical values of *Factors of Cooperation* vary within the range of 1 -5. The smallest variance of range changes is that of the factor *Attention to development of coordination for each pupil*, where all respondents' assessment is not lower than 3, but that of a half of respondents – higher than 4.6. The greatest variance ($\sigma = 0,930$) is that of the factor *Individual work with pupils*. Half of respondents assess it higher than 4, but 25% of respondents assess it by 5.

Assessments of *Factors of Cooperation*, based on Friedman Test, have statistically significant differences. The factor *Attention to development of coordination for each pupil* is assessed higher (Median=4,60), the factor - *A teacher's awareness about peculiarities of voice apparatus and musical hearing and problems of coordination* - lower (Median=3,83).

Table 20. Factors of Cooperation (Descriptive Statistics)

	A teacher's awareness about peculiarities of voice apparatus and musical hearing and problems of coordination	Attention to development of coordination for each pupil	Individual work with pupils	Frequent encountering with coordination development problems
Mean	3,80	4,44	4,00	3,75
Median	3,83	4,60	4,00	4,00
Mode	3,50	5,00	5,00	4,00
Std. Deviation	,749	,583	,930	,924
Range	3,67	2,00	4,00	3,67
Minimum	1,33	3,00	1,00	1,33
Maximum	5,00	5,00	5,00	5,00
Percentiles	25	3,50	4,20	3,00
	50	3,83	4,60	4,00
	75	4,33	5,00	4,33

Between factors *Attention to development of coordination for each pupil* and *Individual work with pupils* a medium strong linear correlation is observed ($r=0,524$). Between factors *A teacher's awareness about peculiarities of voice apparatus and musical hearing and problems of coordination* and *Attention to development of coordination for each pupil* as well as between factors *A teacher's awareness about peculiarities of voice apparatus and musical hearing and problems of coordination* and *Frequent encountering with coordination development problems* ($r=0.319$) there are significant but medium weak correlations.

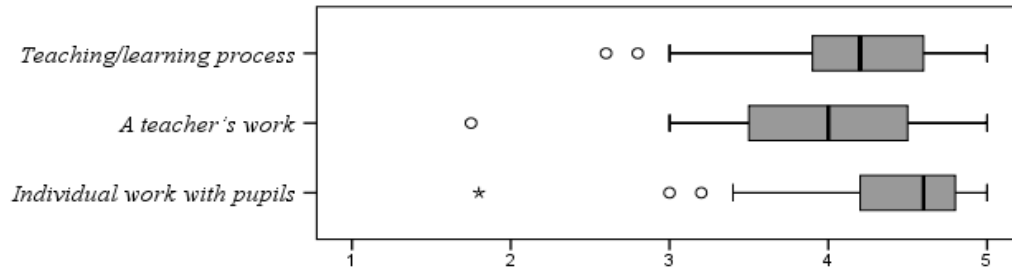


Fig. 2. Factors of Teaching (Boxplot)

The distribution of the factor *Individual work with pupils* differs significantly from the normal distribution, but the rest of the two from the group *Factors of Teaching* have normal distribution. Difference in assessments of all factors is statistically significant. The respondents assess the factor *Individual work with pupils* higher, but the factor - *A teacher's work* – lower; besides, half of the respondents assess this factor lower than 4.

Table 21. Factors of Teaching (Descriptive Statistics)

	Individual work with pupils	A teacher's work	Teaching/learning process
Mean	4,41	3,95	4,21
Median	4,60	4,00	4,20
Mode	4,60	4,00	4,20
Std. Deviation	0,557	0,594	0,550
Range	3,20	3,25	2,40
Minimum	1,80	1,75	2,60
Maximum	5,00	5,00	5,00
Percentiles			
25	4,20	3,50	3,80
50	4,60	4,00	4,20
75	4,80	4,50	4,60

A strong linear correlation is observed between all the factors of this group.

Table 22. Spirman correlation coefficient between Factors of Teaching

	Individual work with pupils	A teacher's work	Teaching/learning process
Individual work with pupils	1	0,608**	0,735**
A teacher's work	0,608**	1	0,628**
Teaching/learning process	0,735**	0,628**	1

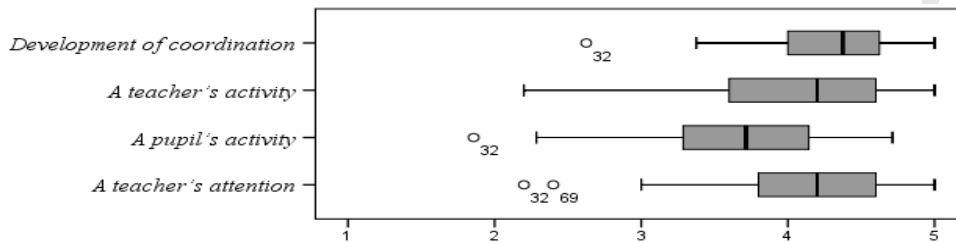


Fig. 3. Factors of Learning (Boxplot)

All *Factors of learning* have a normal distribution, which allows comparing the mean values of these factors by applying parametric methods. The dependent samples do not display significant differences between the factors *A teacher's attention* and *A teachers activity* according to the Students' criterion (Paired Samples Test, Sig. (2-tailed) = 0.106). The assessments of the latter factors have statistically significant differences. The respondents have assessed the factor *Development of coordination* higher, but the factor *A pupil's activity* – lower.

Table 10. Factors of Learning (Descriptive Statistics)

	A teacher's attention	A pupil's activity	A teacher's activity	Development of coordination
Mean	4,16	3,64	4,05	4,27
Median	4,20	3,71	4,20	4,37
Mode	4,40	3,86	3,80	4,13
Std. Deviation	0,574	0,590	0,629	0,455
Range	2,80	2,86	2,80	2,38
Minimum	2,20	1,86	2,20	2,63
Maximum	5,00	4,71	5,00	5,00
Percentiles				
25	3,80	3,28	3,60	4,00
50	4,20	3,71	4,20	4,37
75	4,60	4,14	4,60	4,62

All *Factors of Learning* correlate. A stronger correlation is observed between the factors *A teacher's attention* and *Development of coordination* ($r=0,766$). The correlation between *A pupil's activity* and *Development of coordination* is non-linear. If *A pupil's activity* increases to 4 grades, *Development of coordination* also increases, but a higher assessment of *A pupil's activity* does not show the correlation between these factors.

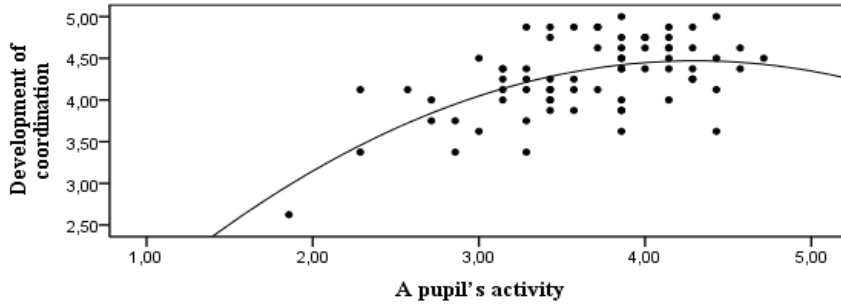


Fig. 4. Scatter diagram with squared regression in *A pupil's activity un Development of coordination* space

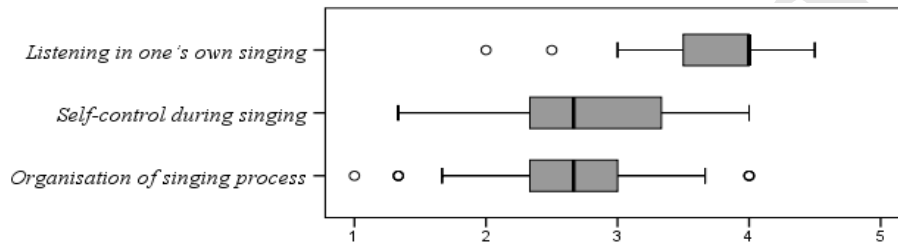


Fig. 5. Factors of Lesson Organization (Boxplot)

From *Factors of Lesson Organization* only *Self-control during singing* is distributed normally. The factor *Listening to one's own singing* has the smallest variance and the highest estimate. Significant correlations between the factors of this group are not observed.

Table 11. Factors of Lesson Organization (Descriptive Statistics)

	Organization of singing process	Self-control during singing	Listening in one's own singing
Mean	2,65	2,80	3,75
Median	2,66	2,66	4,00
Mode	2,67	3,00	4,00
Std. Deviation	0,699	0,665	0,429
Range	3,00	2,67	2,50
Minimum	1,00	1,33	2,00
Maximum	4,00	4,00	4,50
Percentiles			
25	2,33	2,33	3,50
50	2,66	2,66	4,00
75	3,00	3,33	4,00

By a two-stage cluster analysis the respondents were split into two homogenous clusters. The respondents of the first cluster (53.5% from the cluster) estimated all factors higher than the mean value given by the group. The respondents of the second cluster (46.5%) assessed all factors lower than the mean value given by the group. The average age of the respondents of the first cluster is 46.53 years. The average age of the respondents of the second cluster is 45.39 years. According to the t-test criterion, age differences are not statistically significant even

if the level of significance is 10% ($p = 0.648$). The significance level is the precision with which the hypothesis can be rejected.

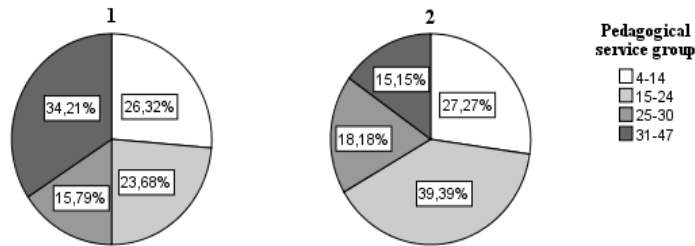


Fig. 6. Distribution of teachers into clusters by pedagogical service

The first cluster includes 34.2% of teachers whose pedagogical service is from 31 to 47 years long. The second cluster includes 39.4% of teachers whose pedagogical service is from 15 to 24 years, but according to Chi-Square test, these differences are not statistically significant ($p=0.261$)

The first cluster includes 42% of teachers with master’s degree, the second cluster includes 45.5% of teachers with master’s degree, but the differences are not statistically significant ($p = 0.482$).

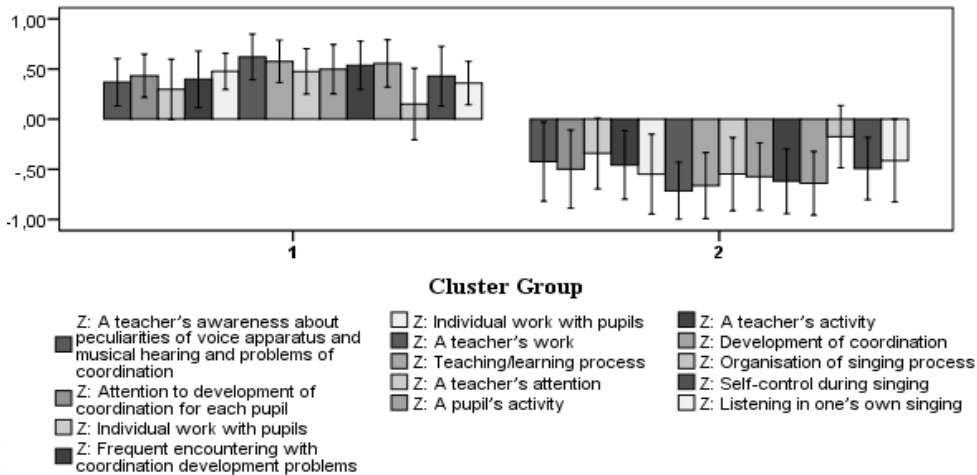


Fig. 7. The mean value of cluster factors for the respondents

Table 12. Factor describing statistics

	Cluster Group	N	Mean	Std. Deviation
A teacher's awareness about peculiarities of voice apparatus and musical hearing and problems of coordination	1	38	4,07	0,539
	2	33	3,48	0,835
Attention to development of coordination for each pupil	1	38	4,69	0,382
	2	33	4,15	0,642
Individual work with pupils	1	38	4,28	0,850
	2	33	3,68	0,927
Frequent encountering with coordination development problems	1	38	4,11	0,795
	2	33	3,32	0,891
Individual work with pupils	1	38	4,67	0,306
	2	33	4,10	0,624
A teacher's work	1	38	4,31	0,413
	2	33	3,52	0,477
Teaching/learning process	1	38	4,53	0,358
	2	33	3,84	0,516
A teacher's attention	1	38	4,44	0,394
	2	33	3,85	0,592
A pupil's activity	1	38	3,93	0,443
	2	33	3,30	0,559
A teacher's activity	1	38	4,39	0,461
	2	33	3,66	0,573
Development of coordination	1	38	4,52	0,325
	2	33	3,98	0,408
Organization of singing process	1	38	2,76	0,758
	2	33	2,53	0,612
Self-control during singing	1	38	3,08	0,603
	2	33	2,47	0,583
Listening in one's own singing	1	38	3,90	0,281
	2	33	3,57	0,501

The algorithms of classification trees allow for solving classification tasks and easy interpretation of the results obtained from the developed model. A classification tree intended to classify teachers into clusters was created by using such characterizations as: *Education, Age, Pedagogical service, Service as a music teacher (6-7)*.

3.1. Projection of the Classification Tree Analysis

To the first cluster are ascribed 77.8% of teachers whose length of pedagogical service working with 6-7 year-old children is more than 25.5 years and 45.3% of teachers having a shorter pedagogical service period. At splitting into clusters teachers with pedagogical service longer than 25.5 years, the next important criterion is education. All the respondents holding a master's degree are ascribed to the first cluster.

61.9% of teachers under 40.5 and the length of pedagogical service less than 25.5 years are included in the first cluster.

Teachers with a bachelor's degree under 40.5 and the length of pedagogical service less than 25.5 years may be ascribed to the first cluster with the probability of 84.6%.

The classification tree allows us to find out what percentage of respondents from the present sample group satisfies the requirements of the projection. The greatest part of the respondents – 46.1% of them - satisfies the requirements of the projection: 65.5% of teachers with pedagogical service more than 25.5 years and age more than 40.5 years are ascribed to the second cluster. Besides, on the basis on the development of the classification tree, a discriminant analysis of factor abilities can be made. The differentiating ability of the cluster is *Service as a music teacher (6-7)*.

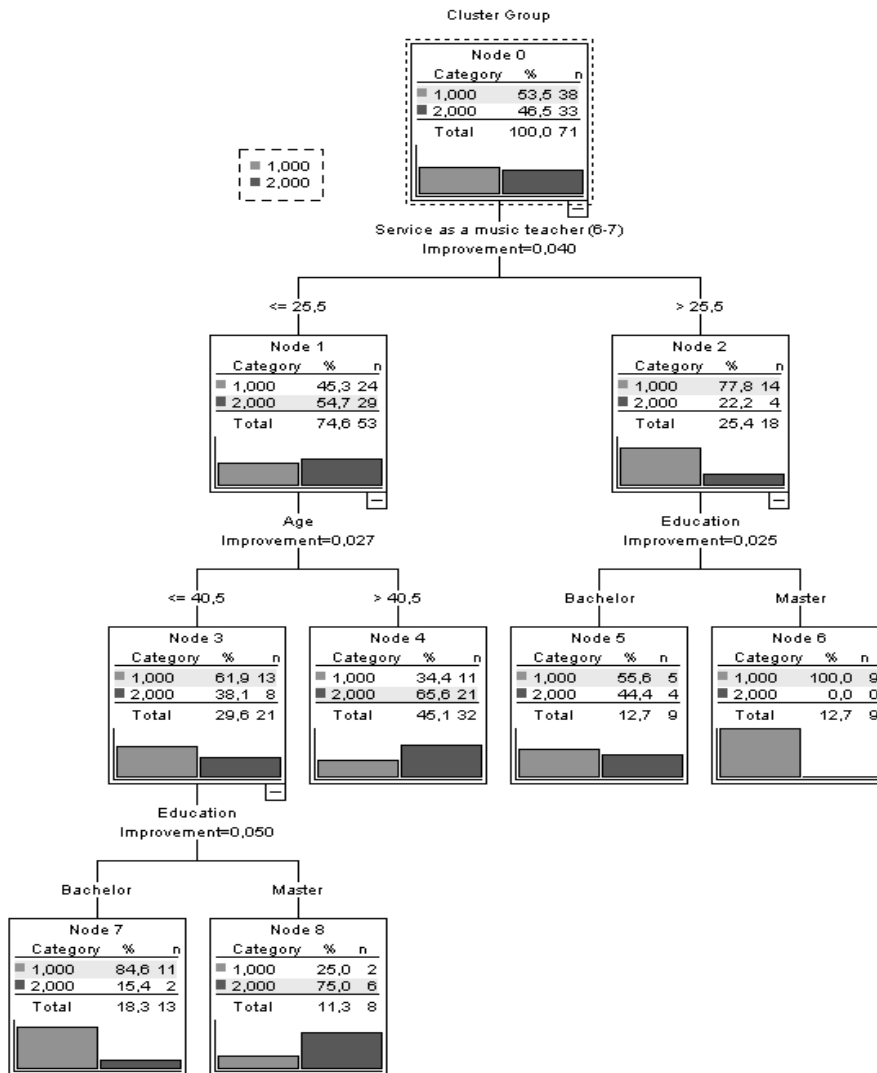


Fig. 8. Classification tree

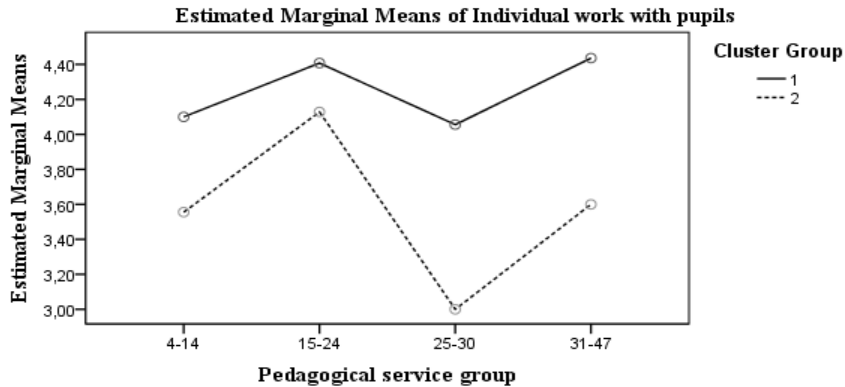


Fig. 9. The mean of the factors (Individual work with pupils) depending on the respondents' pedagogical service

At assessing the factor *Individual work with pupils* by two-factor dispersion analysis, we estimated whether the *Cluster Group* and *Pedagogical Service Group* variables effect the given factor, as well as mutual correlations between them. The variable *Cluster Group* effects the dependent variable *Individual work with pupils* (Tests of Between-Subjects-Effects, $p=0.03$). Statistically significant factorial correlation was not observed (Test of Between-Subjects-Effects, $p=0.612$). The factor *Individual work with pupils* was estimated comparatively high by teachers with pedagogical service from 31 to 47 years and ascribed to the first cluster, while teachers with pedagogical service from 25 to 30 years and ascribed to the second cluster estimated this factor quite low.

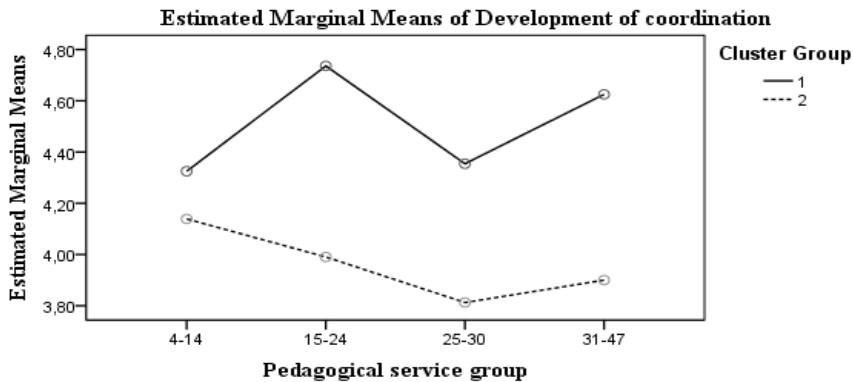


Fig. 10. Factorial means (Development of coordination) depending on respondents' pedagogical service

A two-factor dispersion analysis helped to define the mutual correlation between the factors *Cluster Group* and *Pedagogical Service* at estimating the factor *Development of coordination* (Tests of Between-Subjects-Effects, $p=0.053$). Despite the fact that the respondents of the first cluster estimate *Development of coordination* higher than the respondents of the second cluster, nonetheless the respondents of the first cluster with pedagogical service from 4 to 14 years estimate this factor lower, while the respondents of the second cluster belonging to the same group estimate this factor higher.

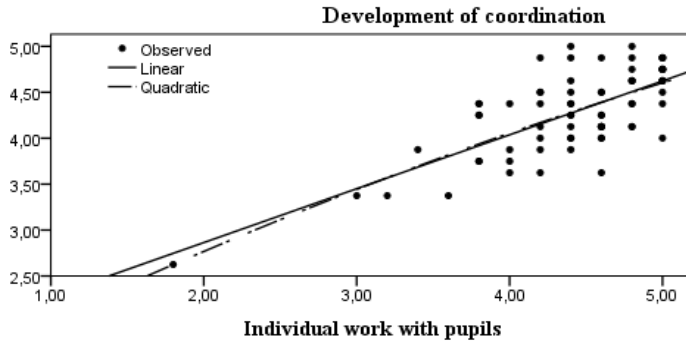


Fig. 11. Scatter diagram with a linear regression on the plane of *Individual work with pupils* and *Development of coordination*

A direct relationship between *Individual work with pupils* and *Development of coordination* is observed ($r=0.718$, $\text{sig.}<0.001$). The correlation coefficient is above 0.7, therefore the correlation is considered strong, and consequently *Individual work with pupils* and *Development of coordination* are mutually dependent. If one increases, the other increases as well.

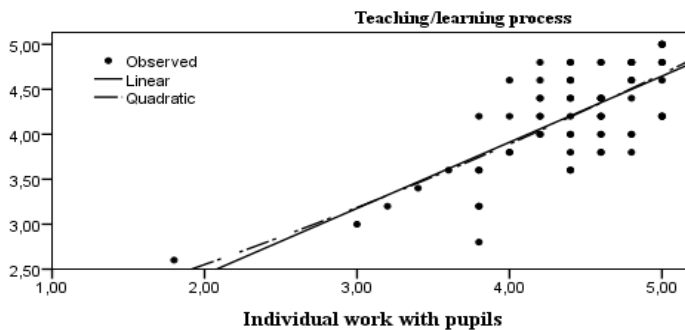


Fig. 12. Scatter diagram with a linear regression on the plane of *Individual work with pupils* and *Teaching/learning process*

A direct relationship between *Individual work with pupils* and *Teaching/learning process* is observed ($r=0.576$, $\text{sig.}<0.001$). The correlation coefficient is smaller than 0.7, but bigger than 0.4, thus the correlation is considered to be medium strong and, consequently, *Individual work with pupils* and *Teaching/learning process* are mutually dependent.

4. CONCLUSIONS

1. To a greater or lesser extent, all the respondents pay attention to the development of the coordination between the vocal apparatus and musical hearing of each pupil. Half of respondents give special attention to it. Not all teachers know the peculiarities of the vocal apparatus and musical hearing of each pupil and are able to deal with coordination problems.
2. The majority of teachers consider the individual work with pupils important for the development of the coordination between the vocal apparatus and musical hearing. The teachers of the first cluster with master's degree and pedagogical service from 31 to 47 years widely apply it in their pedagogical practice. Teachers with a master's degree and pedagogical service from 31 to 47 years pay more attention to the development of coordination between the vocal apparatus and musical hearing than the teachers with the length of pedagogical service from 25 to 30 years.
3. Teachers have admitted that individual work helps teachers to identify problems of the coordination between the vocal apparatus and musical hearing for each pupil and discover their causes. Consequently, an individual approach is the methodological basis of the development of the coordination between the vocal apparatus and musical hearing in the process of acquiring singing.

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4th International Conference on New Horizons in Education

The door of universities that is open for all ages: Continuing education centres

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Abstract

Continuing education centres that function as a bridge in order to develop the relationship more effectively between universities and cities where they exist appeal to all of Turkey's population. Educations supplied in the centres aiming at such a wide community are multifarious. When we look at the working areas of continuing education centres, the following ones can be counted; giving project services and consultancy to public and private sectors, international institutions and individuals in areas which they need, arranging educational programs, courses, seminars and conferences in the national and international standards, giving psychological counselling and guidance services and coordinating these activities, introducing every kind of legal publication regarding the conduct of services and opportunities of university in these areas. The most important requirement for Continuing Education Centres that overtake important missions for educating society to carry out this duty is to have educational halls and administrative buildings belonging to themselves, sufficient administrative staff. The notable problems that still exist for many Continuing Education Centres are inadequacy of buildings, lack of educational halls and buildings and limited number of administrative staff. In addition, Continuing Education Centres have a lot of problems as they are not regarded as academic units. Some of the problems encountered with can be counted such as the standardization and accreditation of education, cooperation with shareholders (such as MEB, business world), international relations and not being able to make use of the project opportunities of The European Union sufficiently, effectiveness in the national and international webs.

Keywords: Continuing education centres, courses, certificate, problems, seminars

1. INTRODUCTION

In information society, the most important factor that will enable countries to reach social, technological and economical standards that they aim at in the rush and interaction web in a cultural atmosphere where competition and quality understanding change depends on innovation and enabling discoveries to be permanent. Technological innovation has put forward the importance of education and learning in information age. With information technologies, educational technologies have changed wholly, and learning has required permanency. While advancing technology and permanent change cause information to be out of date, it necessitates learning to be permanent and life-long. Increasing of the importance of education and developing of new approaches require education to be questioned permanently and developed. This is essential for information society (Yılmaz, 2012).

The general aim of continuing education can be summarized as transforming society into an advanced information society through education, providing better job opportunities and developing social cohesion. One of the most important institutions assuming a task in information society is universities because universities are the

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main institutions that are responsible for production, spread and permanence of information which is the staple of information economy. Accordingly, continuing education centres are founded nearly in each university today. Continuing education centres founded appeal to the whole society with educations that they arrange. As learning is an activity continuing life long, courses opened within the scope of continuing education centres, certificate programs, summer schools, sport schools, child universities and language courses appeal to everybody. Also, higher-up courses can be given in a private area. Moreover, the basic tasks of universities are education, research and development and service for the society. Continuing education centres take on these three missions.

It is known that there are some problems in educational system in Turkey and that these affect the quality of continuing education centres directly.

2. The Problems of Continuing Education

The cutbacks carried out by the circulating capital management pose as a problem. Reducing the cutbacks by the circulating capital management on the incomes obtained from services given by continuing into the minimum will enable the incomes gained from educations given by the centres to be transferred to the trainers. Considering the fact that the target group of continuing education centres all of the Turkish population that is 76 millions and considering the examples in the European Union countries, it is necessary that it should be paved for continuing education centres to work more actively by implementing legal regulations immediately for enabling the conduct of all the life-long learning and general educational activities, which are conducted in different units at universities for the establishment of the staff of Vice Rectors that are responsible for continuing education, the standardization of educations and accreditation, as a single unit under continuing education centres.

In terms of continuity and institutionalization of activities, not regarding continuing education centres as an academic unit and not having permanent staff and managers of continuing education centres are serious problems. The developments in the activities in continuing education centres are closely related with the permanence of those working in these centres (Oğuz, Günay& Boz, 2012).

The most significant requirement for continuing education centres assuming important missions aimed at educating society to put into effects this charge is that they should have education halls and administrative buildings that belong to themselves and sufficient number of administrative staff. For many continuing education centres, insufficiency of buildings, lack of education halls and buildings, the limited numbers of administrative staff are still serious problems.

Considering working in the administration of continuing education centres that have a very heavy work load and giving education as academic performance will increase the motivation of those working in these charges and those assuming charges.

The non-standard educations, using different titles and denominations, not using a common language emerge as problems. Initiating actions aimed at standardisation without delaying is necessary. The council of Turkey continuing education centre can achieve accelerating information transfer and increasing the share of documents by taking a more active role.

There must be an independent institution that will assess the programs regarding the accreditation of continuing education centres. It is necessary that National Standardization of Continuing Education Centres and Recognisability should be enhanced. Developing Continuing Education Programs and Management, providing solidarity, Continuing Education's taking more active roles within the scope of Service Application For Society, the existing International Relations and developing EU Projects and increasing their number must be put into action (Gülşen, 2012).

Not being able to enhance the resources allotted to continuing education adequately and to use the existing resources effectively and conveniently are among the problems.

Proceeding of the quality differences in big city-small city education in continuing education institutions, equipment insufficiency in the course materials related to physical substructure insufficiency in continuing education institutions are also serious problems for the next generations.

Through the financial problem of continuing education centres that are located at universities because of the circulating capital system, the fact that the cost proposals of education service aimed at marketplace in some technical educations are higher than those in private sector education firms forces those who want to take education into different searches.

Insufficiency of communication, cooperation and vocational solidarity among trainers can be added to the problems. Insufficiency of professional manager and staff in continuing education institutions is among the basic problems.

3.Recommends

Trainers must be enabled to be also literate, practitioner and producer in computer, informatics and educational technologies. It is clear that it is necessary that the subject of "education of the trainer" should be in a privileged position within the strategic aims that will function as a hoist in renewing education. In an atmosphere in which learning is in the forefront instead of teaching, both educating permanently trainers in each rank of continuing education and reaching the systems that they can learn and surroundings by themselves must be enabled and encouraged. The creation and permanence of the most extensive opportunities that are possible aimed at becoming creative-innovative experts and talented individuals of information age of trainers that have strategic importance in renewing education beyond developing skill, ability and competence must be attentive to. It must be kept in mind that it is necessary for quality intellectual capital to exist and that it can be put into effect by innovative trainers' education. The candidate of continuing education must turn his direction to the future, be sensitive to changes and developments, and must take into account failures in educations where he will take part. In order to increase the quality of education, it is necessary that trainers should be raised well and that trainers' education should be spread in such a way that it will follow innovations.

The fact that education of information age is implemented as learning oriented, permanent, life-long and independent of any setting results from the radical revolution experienced in communication and information technologies. Therefore, our education system has to be united with technology-based equipment rapidly.

Being dominant over the technologies of the future firstly makes it necessary to have trained human power in those subjects. As well as institutes that will train human resources that will work in scientific and technological areas which prioritize society and that will be needed in research and development, continuing education centres must be enabled to put into action and supported particularly. In continuing education, a new enterprise that will make use of various resources and opportunities, including trainer opportunities, is essential to be made. In this context, our university must be put into effect and supported. By renewing science and technology policies, a new pursuit, a new world view, constructing innovative cultural policies and motivations, the subject must be approached in more comprehensive policies. Life-long learning must be sustainable.

It is necessary to provide structural alteration in continuing education, to develop human resources, to better research and development, to develop intellectual capital, to establish university-industry cooperation and to form innovative trainers. Achieving these practices is closely related to the social awareness.

Renewing learning of continuing education must be within the educational system that the power to renew itself.

The foundation of the society is learning individuals. From this perspective, continuing education that will be effective in creating learning individuals have a significant function and effectiveness because the presence of learning individuals in societies can be possible by means of continuing learning. In order to be successful in a permanently changing, renewing and developing global atmosphere, it is necessary for the personnel to be educated permanently.

4. Conclusion

The major capital of information age is educated people. It is necessary for our country which has the potential of young people to make an enterprise by making use of this potential. Our country's young population is more than most of the European countries. This young population is not a power by itself. Solely the young population that are educated well can make up a strong potential. For this reason, universities have an important role in the development of the society. The only resources of educated human power which can enable the country's development are "science", "technology" and "universities."

Universities contribute to society's education with continuing education centres that they found and that they give service with, and they supply with permanence in individual learning. In constructing an information society, people are given some attainments with continuing education. These can be counted as the following;

To increase occupational skills,

To have knowledge in occupation in depth,

To teach learning,

To create individuals who are open to sharing information and to prevent jealousy of information,

To create the culture of sharing information,

To teach how information can be reached,

To create individuals that are researchers and developers,

To create creative and innovative individuals,

To create flexible individuals that are open to change,

To create individuals who are open to working in a team (Atak&Atik, 2007). The significance of continuing education centres which serve to obtain these results will enhance day by day.

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The effectiveness of problem-based learning supported with computer simulations on reasoning ability

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Abstract

The purpose of this study was to investigate the effectiveness of Problem Based Learning (PBL) supported by interactive computer simulations within the context of “Buoyant Force in liquids and gases” subject on reasoning ability. The study was conducted with a quantitative methodology via non-equivalent groups quasi-experimental design. The sample of 54 students enrolled in two eighth grade classes of a public middle school in Turkey was included in this study. One of these classes was randomly assigned as experimental group and instructed by means of PBL, whereas the other class was assigned as control group and instructed by means of traditionally designed instruction. In order to measure reasoning ability of the students, The Test of Logical Thinking was used as pre- and post- tests in both control and experimental groups. The results of independent t-test showed that the students in PBL classes had significantly higher mean scores on reasoning ability than the students of control group.

Keywords: PBL, Elementary Science Education, Buoyant Force in Fluids and Gases, Reasoning Ability.

1. Introduction

Continuous change occurring in today’s world has been forcing educational systems to change. The changes in educational systems have caused replacement of common approaches of education in which students are dependent on books and teachers, and want to get too much knowledge by rote learning, with modern approaches of education. In modern educational point of view, students must be heartened to go beyond the memorization of facts, to think critically and creatively, and to apply their knowledge to problem solving in new and unfamiliar contexts (Chin & Chia, 2006). To provide required changes in line with modern education approaches, constructivist theory has been providing a well-established guide. The constructivist theory accepts that students need to be exposed to learning experiences that enable them to construct their own knowledge and promote their thinking skills (as cited by Barak et al, 2007 from Cobb, 1994 and Driver, Asoko, Leach, Mortimer, & Scott, 1994).

Among methods based on constructivist approach, problem based learning has been providing an important opportunity to improve active learning and higher order thinking skills including critical thinking, creative thinking and problem solving (Kumar, 2010; Tan, 2007; Barak et al, 2007). Problem-based learning has been developed in the late 1960s at McMaster Medical School in Canada and pervaded since then throughout different parts of the world. PBL has also been integrated into other medical schools and health-related programs such as nursing, dentistry and therapy (Mierson, 1998, Scott et al., 1999, Solomon & Geddes, 2001). Furthermore, it has

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been adopted by numerous disciplines including architecture, law, engineering, business, social work (Savery & Duffy, 1995), geography (Bradbeer & Livingstone, 1996), zoology (Harland, 2002), biology (Chin & Chia, 2004), chemistry (Yee, 2007) and science education (Gallagher et al., 1995, Dahlgren & Öberg, 2001, Kumar and Sherwood, 2007).

Problem-based learning is an instructional method characterized by use of problems as a context for pupils, working in small groups, to learn problem-solving skills and to enhance their knowledge (Albanese & Mitchell, 1993). Learning in this way is oriented and self-motivating and pupils learn while searching for solutions to problems. They are actively involved in process and learn in the context in which knowledge is to be used (Chin & Chia, 2004). Kolodner et al. (2003) also indicated that, in a PBL process, students learn by solving real-world problems and reflecting on their experiences because real-world problems are complicated, students work together in groups where they pool their expertise and experiences together and cope with complexities of issues that must be considered. In PBL, information that students collect about unit of study is learned for the purpose of solving a problem. Therefore, problems are introduced at the beginning of a unit of instruction. This order is different from traditional teaching methods which present problems only after students have learned the necessary body of knowledge. The “problem-first” approach in PBL ensures that students know why they are learning about what they are learning (Gallagher et al., 1995), hence rising intrinsic motivation for learning (Chin & Chia, 2004).

Literature indicated effectiveness of PBL on development of a range of skills comprising active participation in learning process, taking responsibility for their own learning, becoming better learners in terms of communication and group work skills, evaluating different resources and assessing validity of these resources (Bernstein, Tipping, Bercovitz, & Skinner 1995, Eng, 2000, Gibbon & Wall 2005, Lieux, 1996, Lo, 2004, Vernon, 1995). According to Peterson and Treagust (2001) PBL was defined to develop students’ knowledge bases in their profession, and their reasoning and problem-solving abilities related with the discipline. Additionally, PBL helped students improve their critical thinking, problem solving and time management skills and encouraged them to do research for more detailed information beyond what was presented in the classroom (Araz & Sungur, 2007). As a different perspective, McBroom and McBroom (2001) proposed that students who completed the PBL tasks experienced change in attitude toward PBL application with positive direction and an apparent gain in self-confidence. Similarly, Harland (2002) observed that students in PBL environment undertook both of roles of teacher and student and they contributed to increase in knowledge levels of peers and teachers. Yee (2007) wrote other important advantages of PBL as to provide easier understanding and use of knowledge, positive attitude toward learning, and positive relationship among students and to increase in higher order thinking skills.

In the studies showing the effectiveness of PBL, advantages of PBL were shown from different points of view and its effect on higher order thinking skills were shown to be positive. In the process of PBL, students are in need of use higher order thinking skills while they decide on which of strategies and techniques should be used, which solution ways can be used and how they incorporate selected solution into application plan (Bentley and Watts, 1989). Higher order thinking skills correspond to analysis, synthesis and evaluation stages of Bloom’s taxonomy of cognitive abilities. Indeed, learning experiences focusing on analysis, evaluation, and synthesis, develop skills in problem solving, inferring, estimating, predicting, generalising and creative thinking, question posing, decision making, critical and systemic thinking, which are all considered as higher order thinking skills (Dori et al, 2003, Barak et al., 2007). In addition to these, reasoning ability is another type of higher order thinking skills as a potential variable for PBL studies. Piagetian approach accepts reasoning ability as higher level cognitive ability and the most important indicator of cognitive development. Differently from other higher order thinking skills, reasoning ability is an important ingredient of inquiry process and informed decision making .

Prominence of inquiry and informed decision making have been indicated by different studies in science education literature (Abd-El-Khalick et al., 2004; Chin & Chia, 2006). Reasoning ability has also an important role in meaningfully construction of science concepts (Tan, 2007, Lawson et al., 2007). By taking into account importance and potential of reasoning ability for inquiry process, informed decision making and academic performances of students, this study focused effect of PBL as a context for inquiry process on reasoning ability as a dependent variable indicating higher order thinking skill.

As another point, majority of existent literature on PBL at the level of elementary education have not used facilitators such as computer simulations (Araz & Sungur, 2007). But, simulations have a great potential for PBL teaching process. According to Sahin (2006), instruction supported by computer simulations provides students the opportunity to observe a real world experience and interact with it. Especially, in science classrooms, simulation can play an important role in creating virtual experiments and inquiry. At the same time, simulations might contribute to conceptual change, provide open-ended experiences for students; provide tools for scientific inquiry and problem solving experiences. In line with these ideas, Araz and Sungur (2007) also recommended use of simulation to increase effectiveness of PBL and stated that computer simulations facilitate to learn concepts and processes of science by PBL.

Therefore, the purpose of this study is to investigate effectiveness of PBL application supported by interactive computer simulations on reasoning ability.

2. Method

The study was conducted with a quantitative methodology by using a non-equivalent groups quasi-experimental design. For purpose of the study, PBL applications were conducted in two intact classes of an elementary school in Zonguldak, Turkey.

2.1. Sample

The sample of this research consisted of 54 students (28-experimental group, 26-control group) enrolled in two eighth grade classes of a public middle school in Zonguldak, Turkey. The mean age of the students was 14 and majority of the students were from middle-class families in terms of socio-economical status. One of the classes was randomly assigned as experimental group and instructed by means of PBL, whereas the other class was assigned as the control group and instructed by means of common instructional approach. The applications made in both groups were done by teacher of the classes.

2.2. Instruments

In this study, in addition to personal information questionnaire, one instrument; The Test of Logical Thinking was utilized to collect data. The instrument was applied as pre and post-tests in both groups.

2.2.1. The Test of Logical Thinking (TOLT)

The Test of Logical Thinking (TOLT) developed by Roadrangka, Yeany and Padilla (1982) and adapted by Korkmaz (2002) was used to measure formal reasoning ability of the students. The test included 18 multiple choice and three open ended items. Students respond to each item by selecting a response and also their reason for selecting that response. For an item to be scored correct, the student must give both the best answer and the best justification. TOLT measured 6 logical processes. These processes are conservation (1item), mass (1 item),

length (1 item), volume (1 item), proportional comparison (6 item), controlling the variables (4 item), consolidative comparison (3 item), probabilistic comparison (2 item) and relational comparison (2 item). According to the study of Korkmaz (2002), the test was found to be appropriate for students at 6th grade level and above. The time required for completion of the test was 45 minutes. The alpha reliability of the test was 0.77. In the scoring process, one point was given to each true answer and satisfactory reason for the first 18 items, and one point was given to each true answer for the other questions.

2.3 Treatment

A total of 54 eighth grade students enrolled in science courses at a middle school were involved in the study. The study was carried out during four weeks in 2009-2010 fall semester (total number of hours for unit =16 hours). The instruction period for each class was four 40-minute sessions per week.

Experimental group, in which PBL was applied, included heterogeneous groups of four or five individuals who varied in gender and academic achievement. To construct heterogeneous groups was thought to be effective in providing high level interaction among students (Watson & Marshall, 1995). After construction of the heterogeneous groups and pretesting, each of the groups in experimental group was asked to produce problem situations regarding to one of the titles about “buoyant force in liquids and gases and related factors” subject at the first stage of the study. Then, the groups constructed scenarios including at least three alternatives of problem sentences after they wrote problem questions. In the following stage, the groups chose one scenario from three alternatives by discussing about the aspects of the scenarios. After the selection of scenario, the groups determined three sub-problems about their scenarios. Then, members of the groups presented their prior knowledge about scenario and its sub-problems. In addition, the participants decided about what they needed to know further and they shared task about researching on the scenario and the sub-problems by using reliable knowledge resources.

In the second stage, the groups evaluated and synthesized knowledge they found in the different sources; internet, journals, and books etc. Moreover, the participants used interactive computer simulations and packet programs about the subject in school computer lab. Based on their knowledge, the groups suggested different solutions on each sub-problem by brainstorming. By the way of brainstorming, the groups recommended too many solution ways as possible as they have done. After finding solution ways, the groups decided about which solution ways were valid and reliable. For making decisions, the groups shared the task of reaching experts and finding additional resources.

In the third stage, the groups eliminated some of alternative solution ways by using expert opinion and knowledge from resources and explained the most appropriate solution way for each sub-problem by stating the rationale of the eliminations. Then, the groups wrote their solution ways for each sub-problem in the form of hypothesis. The reason for asking to write the solution ways in form of hypothesis was that students should design experiments to test these hypotheses. As such, the groups might also have taken the opportunity of presenting their solution ways in an order. For the following stage, each group also shared the task of finding required materials and tools regarding to their experiments.

In the fourth stage, the groups designed their experiments and tested the hypotheses in an order. First, the groups made trials on their experiments before presenting them. Second, they presented their experiments to

whole class. Therefore, the experiments were observed by the other groups of the same class. At the last stage, the instrument was applied as post-test.

During the process of applications made by the students, teacher observed all groups by visiting them and provided guidance when it was required. Teacher did not give any content knowledge in spite of the groups' demands for driving the groups to do more research by themselves. At the same time, teacher examined all of the works of the groups and provided feedback for lack parts. In some situations, teacher warned the groups for studying as a group rather than individual struggles and recalled importance of group performance. In addition, teacher facilitated the process of applications by providing support for the great problems which had a potential to interfere with the process of the study.

In the control group, traditional method was used during the study time. The learning environment was teacher-centered and lessons were taught by considering objectives of the units with lecture and question-answer techniques. The units were the same with those for experimental group. The students were asked to be prepared for the units before the lessons and question-answer technique was used as beginning activity to teach the unit. Pre-knowledge levels of them were determined and the studies on the unit were presented with lecture and question-answer approaches. After that activity, the students were asked to study on the subjects. The control group students experienced an instruction in which explanations and questions of the teacher were focus and knowledge-centered approach was conducted. In this process, the direction of communication between student and teacher was from teacher to students. Similarly to experimental group students, control group students took the instrument as pre-and post tests.

2.4. Data Analysis

In the study, two variables; one dependent and one independent, were investigated. For analyzing of the data, t tests for independent and paired samples were utilized for its appropriateness to compare two groups on dependent variable. For purpose of this study, four different statistical processes were conducted, so family-wise alpha level (.05) was adjusted by Benforroni approach. Therefore, throughout analyses, .0125 was used as alpha value in this study.

3. Results

To compare the students' pre and post test scores of reasoning, the TOLT was administered to both groups before and after the treatment. In order to examine the effectiveness of the PBL on students' reasoning abilities, the scores acquired in pre- and post-tests of the TOLT were analysed by t-tests.

As can be seen in Table 1, independent sample t-test analysis showed no statistically significant difference between the mean scores of the control and experimental groups with respect to their prior reasoning abilities on the TOLT ($M_{\text{cont}} = 3.53$; $SD_{\text{cont}} = 2.25$ and $M_{\text{exp}} = 4.46$; $SD_{\text{exp}} = 3.32$; $t_{(52)} = .233$; $p > .0125$). The magnitude of the difference in the means was small ($\eta^2 = .02$) This result demonstrated that the students' reasoning ability levels in both groups were similar to each other before the treatment.

When looked at the results after the treatment, independent sample t-test analysis revealed a statistically significant difference between the control and experimental groups' mean scores on the TOLT in favour of the experimental group ($M_{\text{cont}} = 3.75$; $SD_{\text{cont}} = 2.60$ and $M_{\text{exp}} = 6.00$; $SD_{\text{exp}} = 3.45$; $t_{(52)} = 2.71$; $p < .0125$). The magnitude of the differences in the means was medium ($\eta^2 = .12$). The students in the experimental group demonstrated more increase in reasoning ability than the control group students.

Table 1 Independent t-test results for groups' reasoning ability scores

Tests	Groups	<i>N</i>	<i>M</i>	<i>SD</i>	<i>df</i>	<i>t</i>	<i>p</i>	η^2
Pre-test	Control group	28	3.53	2.25	52	1.2	.233	0.02
	Experimental group	26	4.46	3.32				
Post-test	Control group	28	3.75	2.60	52	2.71	.009*	0.12
	Experimental group	26	6.00	3.45				

Paired sample t-test statistics showed a no statistically significant mean difference between pre- and post-test mean scores of control group ($M = 3.75$; $SD = 2.60$; $t_{(27)} = .62$; $p > .0125$, Eta squared=.01) while there was a statistically significant mean difference between pre- and post-test mean scores of experimental group ($M = 6.00$; $SD = 3.45$; $t_{(25)} = 2.79$; $p < .0125$, Eta squared=.24) with respect to reasoning ability on the TOLT (Table 2).

Table 2. Paired t-test results for groups' reasoning ability scores

Groups	Tests	<i>N</i>	<i>M</i>	<i>SD</i>	<i>df</i>	<i>t</i>	<i>p</i>	η^2
Control group	Pre-test	28	3.53	2.25	27	.62	.53	0.01
	Post-test	28	3.75	2.60				
Experimental group	Pre-test	26	4.46	3.32	25	2.79	.01*	0.24
	Post-test	26	6.00	3.45				

4. Discussion

This study compared effectiveness of PBL instruction supported by computer simulations and common instructional approach on elementary students' reasoning ability at the context of "Buoyant Force in liquids and gases" subject. The results of this study showed that the students in PBL group had higher reasoning ability than the students in comparison group after the treatment. The difference between groups can be explained by effectiveness of PBL process on reasoning ability components. The TOLT included items on proportional comparison, controlling variables, consolidative comparison, probabilistic comparison and relational comparison as components of reasoning ability. In parallel to the components of the test, PBL application might have provided the opportunity of using higher-order reasoning components in finding useful solution ways. In addition, the students might have taken the opportunity to use reasoning ability during the first two stages of PBL application in which the students gathered knowledge, commented on the knowledge and eventually synthesized what they have learned. Studies have also shown that by reflecting upon learning during PBL process, students are able to analyse and synthesize the contextual information, acquire further knowledge and assimilate it into their existing knowledge base (Nelson, Sadler, & Surtees, 2004). According to Lam (2009) many studies have found that students in PBL curricula are likely to transfer higher order thinking to new situations. The study carried out by Krynock and Robb (1996) showed that PBL does increase higher order thinking skills of eight grade students by requiring them to think about a problem critically and analyzing data to find the solution. Wong and Day (2009) have also found PBL to be effective on increasing higher-order thinking ability at the level of junior secondary school. These results are in line with result of this study on higher order thinking skills as correlates of reasoning ability.

In the world, what is important for people who need solve open-ended problems in collaboration for their life is to use knowledge effectively rather than to record simply knowledge into mind. With this idea in mind, requirement for PBL applications in learning contexts emerges due to focus of the approach on group processes, problem solving and real life situations. Every effort in dealing with ill-structured open-ended problems by studying in groups might lead to departure with maximum gains from learning environments. PBL applications

might provide much more benefits from use of knowledge for solution to gain of higher order thinking skills (e.g. reasoning ability, creative thinking, critical thinking etc.) and of collaborative study habits such as communication and interaction than traditional applications. PBL might be used more effectively in learning contexts. For instance; technologically equipped PBL contexts might be used to increase visuality of the subject. Again, if this way is accompanied by interactive experience, the students can focus on the problem more effectively and internalize the problem.

In this study, effectiveness of PBL on reasoning ability has been shown. In the effectiveness of the approach, incorporation of the computer simulation was thought to be contributor and facilitator. For the role of computer simulations, it can be said that abstract concepts and principles might be converted into more concrete subjects by the simulations. The same effect of the simulation might have been valid for the increase in reasoning ability. As stated by Sahin (2006), simulations can contribute to conceptual change, provide open-ended experiences for students; provide tools for scientific inquiry and problem solving experiences. In addition, Kumar and Sherwood (2007) have shown the effectiveness of problem based simulations on conceptual understandings of students. In another study of Kumar (2010), he stated that interactive video technology reached new heights in providing anchors for problem-based learning. During inquiry process supported with visualisation, development of reasoning ability is easier due to continuous use of reasoning ability in inquiry process.

The results of this study have importance in science education. First, the study has been providing empirical evidence for effectiveness of PBL supported with computer simulations at the level of elementary students. Second, the experimental nature of the study has been giving the opportunity of finding cause-effect relationship. As the other implication of this study, applications of the study have been providing a guide for science educators who want to design an instruction by using PBL approach to increase reasoning ability. The support of the computer simulations is another important aspect of this study, because the abstract concepts of physics have been converted into more concrete objects. Therefore, this study has been describing a way of incorporation of effective computer simulations into PBL instruction.

Although the study has an importance for application of PBL in science education environment, this study has some limitations regarding to internal and external validity. Number of the subjects and the topic studied are limitations of this study for generalizability aspect. In addition, quasi-experimental nature of the study with non-random assignment is another limitation to eliminate threat factor including pre-existent difference between participant characteristics of the groups.

Based on the results of this study, it can be suggested that more sample is needed to increase generalizability of the study. At the same time, the subject of "buoyant force in liquids and gases" has been focused in this study, so the method should be applied to other physics subjects to increase external validity of the study. As another suggestion, true experimental method should be used with random assignment in future studies to overcome internal validity threats.

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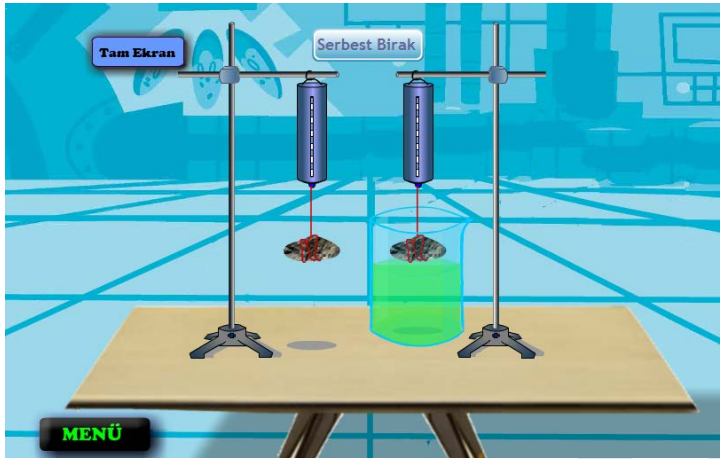
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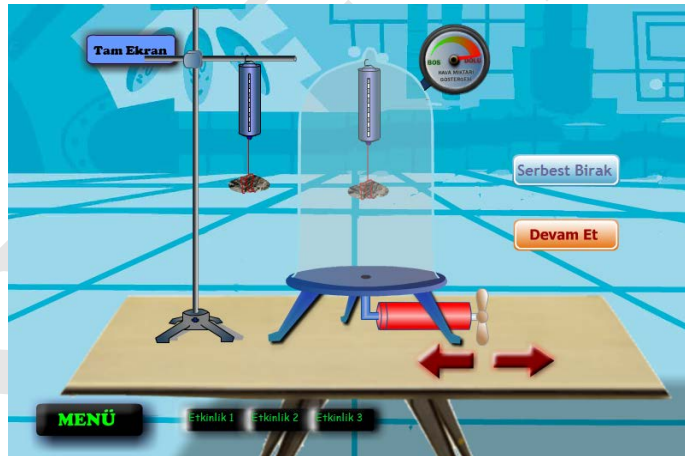
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Appendix D. Examples of Simulations



Screen 1.

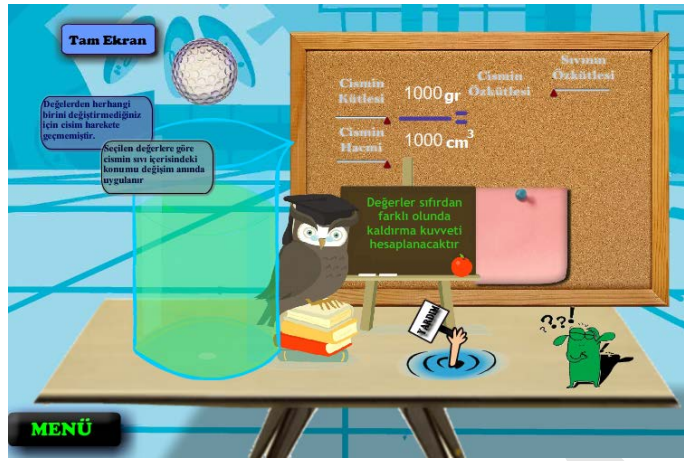
The student doesn't observe any changes until he interacts with the simulation. When the "release" button on the simulation is pressed, both objects tied to the two dynamometers are released. As one of the objects drops into the liquid in the beaker glass, the other remains in the same atmosphere (in the air). As buoyant force is applied to the object in the liquid, the value read on the dynamometer decreases considerably.



Screen 2.

The objects inside the glass globe and in the atmospheric environment which are tied to dynamometers are released when the "release" button is pushed. In addition, in order to empty the air in the glass globe, the amount of air inside the glass globe is adjusted by clicking the arrows near the cylinder. When the arrow which points to the right is clicked, the cylinder comes out and the air inside the globe is emptied. If it is emptied (on condition that the cylinder is already out) as the arrow which points to the left is clicked, the cylinder goes in and the globe is filled with air. The air in the globe can be checked via the gauge connected to the globe. If the user has emptied the

air inside the globe with the help of the cylinder, when released, the objects are balanced in a state in which the object inside the globe is lower. If the air inside the globe hasn't been emptied, both objects are balanced at the same level.



Screen 3.

In the section where the variables which buoyant force is dependent on except gravitational acceleration are analysed, the user can adjust the mass and volume of the object and the density of the liquid as desired. The density of the object is not displayed until the mass and volume of the object take a numeric value. The information as to how the user is going to change these variables is represented by the balloon which appears when the user puts the cursor on the names of sliders. Similarly, the value of the buoyant force appears on the screen when the density of the liquid is adjusted. The simulation doesn't make any calculations until the user defines values for all the variables. When all the variables on which buoyant force have been defined, the value of the buoyant force is presented by the simulation. When any change on the variables is made, the object immersed into the liquid is affected by these changes, and the location of the object is updated according to the interaction between, the density of the object and that of the liquid. This update process is animated in the animation and the object moves in a way close to real. Numeric values are provided on the panel about the immersed part of the object. To get information about the location of the object, the pointer is moved on the object, information about the location is provided in the speech balloon that appears on the screen. When the help icon on the table is clicked, a help screen about the simulation appears.

4th International Conference on New Horizons in Education

The Effectiveness of using Social Communications Networks in Mathematics Teachers Professional development

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Abstract

The Study Aims to Determine the Effectiveness of using Social Communications Networks in Mathematics Teachers Professional development. The Main Research Questions was: What is The Effectiveness of using Social Communications Networks in Mathematics Teachers Professional development. And the sub Questions were: (1) what are the standards of sustainable mathematics teachers' Professional development? (2) What are the main features of a sustainable mathematics teachers' Professional development program?.. The Research Using the semi experimental methodology, the research group was (20) Elementary Mathematics Teachers.

The Result indicate the effectiveness of social networking in the for mathematics Teachers professional development program. And determine the Procedural Standards for mathematics Teachers Professional Development, Presented applied Vision for Mathematics Teachers Professional Development Program.

The result recommended that work on the development of intensive training to clarify the objectives and methods of use and activation of Social Networking in Professional Development, and give Attention to the provision of Computers and wireless internet access in schools, teacher training on using social networks, work to develop a strategy to activate these networks formally within the curriculum, and to encourage and support models and successful experiences in this field and published this deployment.

Keywords: Social communications networking, professional development, mathematics teachers

1. Introduction

The rapid development in all higher education institutions and technological resources made the ELearning Teaching has been recently stressed. Using Educational technology became a core and critical issue in education, In line with the fast advance seen in technology, the use of technological resources in education has play an important role in terms of drawing students' attention to the subjects studied in the classroom so that success increases and the knowledge is better internalized. (Can, Sendil, 2010). In addition, Teachers Have to know and use all new technological resources which facilitate the teaching and learning process, especially as using Social networks as means of Educations.

The great deal of cognitive and technological accelerating development in the world today which appears – especially- in the emergence of development of communication technologies, and the dominance of technology in general to all life situations, led to substantial exchanges in the methods of educational communication in both physical and human dimensions. That the technological, cultural, economical, and political challenges, so as the emergence of claims for quality and academic accreditation besides seeking precedence, imposed the necessity to

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make radical changes in both the political , economical and the educational system in both the developed and developing world alike.

So the educational institutions are trying hard to cope with the variables of this age, shift towards electronic learning systems through activating the educational and information technology to reach the concept of positive learning which is based on cooperation among strategies of quality, access and lifelong learning using network based learning systems and application of the second generation of internet "Web 2.0" including the new techniques for digital reality that made a large changes in the classroom with the modern ways of communication between teacher and student , and among students themselves, so as with the potentials for knowledge management in academic learning environment.

Thus, every teacher in Arabic school should develop and modify his performance and build up himself professionally and cognitively, to comply with the information age, and to exceed challenges by having the knowledge and the ability to make it more, and upgrading his cognitive, cultural, technological and information experience. That can be achieved by depending on computer technology and internet that will make every teacher playing the roles of the "facilitator, guide, advisor and leader" to be able to fulfil his students needs.

That was the aim of the educational systems all over the world, by providing different opportunities to build up the teacher in an integration way to raise the level of the educational process, that the teacher consider one of the pillars of the educational system, so without a qualified, academic well trained teacher aware of his role well , any education system can't achieve its objectives. Besides the explosion of information and the world gets in to the information technology and telecommunication and the high-tech , it becomes a deep need to a developed teacher coping with his age, and to fulfil the students' needs and has the ability to deal with the technological tools to build and transfer information in different ways to meet the community needs and to be a producer for information through education directions and ongoing techniques and through the variables of the evolution of education and information technology.

So, the emergence of social communication networking sites on the Internet, is a natural result of the human needs to build a relationships and advanced and conversational interactions that rebuild relationships between individuals through the concept of individualism which is one of the requirements of using computer or we can say 'computer side effects. Because of that, These social networking has the strongest impact on the growth of the user's number of these networks, these users have the highest percentage of all interested users who use the applications of web 2.0. so each educational system should be aware of what are the modern technology applications in Web 2.0 and how to get use of it in the professional development to overcome gaps in the development of the educational system and its obstacles of time, low budgets, and the abstention of beneficiaries to get in professional development programs.

All of the above shows the extent of the use of social networking in teaching and learning and professional development, which reflects the importance of the current study as it discuss a none touched area by Arabic studies.

They are many studies refer that, the Using of Social networks (Facebook for Example) has Effectvnes in teaching and Training as: Chen· Y. C. (2008), Coyle· J. (2007), Craig Deed; Anthony Edwards(2010), Cristina Maria BĂLTAREȚU; Delia Cristina BALABAN(2010), Ellison, Nicole B., Steinfield, Charles, Lampe, Cliff (2007), Federica Oradini, Gunter Saunders.(2007) , Filiz Tiryakioglu ; Funda Erzurum (2011), Kevin P. Brady, Lori B. Holcomb, and Bethany V. Smith (2010), Klassen· J. D. (2005) Lockyer; J. Patterson (2008), Marianne Lenox & Maurice Coleman (2010), Mpine Makoe, Exploring the use of MXit(2010), Murphy· J· & Lebens· R. (2008), Naomi Kurata (2010), Ryan· R. B. (2007), Sacide Güzin Mazman; Yasemin Koçak Usluel(2009), Vasudha Kamat, Devika , Vildan Donmus (2010), Wolf M . Alison. (2010), Yih-Ruey JUANG (2010), YU-CHING CHEN (2008).

2. The Study

2.1. *The Problem of the study:*

The professional development system of Mathematics Teachers faces many defects which strictly the benefits of all development efforts, then this study try to involve the Social networks in mathematics Teachers professional development, which agree with studies of (Giraud, 1997; Keeler & Steinhorst, 1995; Rohrbeck, Ginsburg-Block, Fantuzzo & Miller, 2003).

The study main question is:

What is the effectiveness of Social networks in mathematics Teachers professional development?

The sub questions are:

- What is the reality of mathematics Teachers professional development?
- What are the professional needs of mathematics Teachers?
- What are the main features of Training programme based on Social networks for professional development of mathematics Teachers?
- What are the effectiveness of the suggested program in developing the teaching performance of mathematics teachers?

2.2. *The Limitations:*

- The Domain of Teaching skills of professional development domains.
- Elementary mathematics Teachers?

2.3. *The Tools:*

- Electronic Questionnaire directed to Elementary mathematics Teachers
- List of Professional development needs.
- Program for Elementary mathematics Teachers Professional development
- Performance Teaching Test

2.4. *The producers:*

- Building an Electronic Questionnaire directed to Elementary mathematics Teachers for exploring the reality of professional development.
- Building List of Professional development needs.
- Building The Training programme (defines the aims – the content - The Levels of the programme - The Time table - open the Facebook Page – trainers invitations)
- Pre-test
- Train the teachers
- Post-test

2.5. The Result:

The researchers found some result about the effectiveness of the suggested program in developing the teaching performance of mathematics teachers

are being displayed in the following tables:

Table (1) Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	Pre Post	-67.82500	6.39666	1.01140	-69.87075	-65.77925	-67.060	39	.000

Table (2) The descriptive statistical of pre-post

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
					Pre	20		
Post	20	73.7000	5.26258	1.17675	71.2370	76.1630	63.00	80.00
Total	40	69.3250	6.71923	1.06240	67.1761	71.4739	58.00	80.00

Table (3) F-test of pre-post test

	Sum of Squares	DF	Mean Square	F	Sig.
Between Groups	765.625	1	765.625	29.236	.000
Within Groups	995.150	38	26.188		
Total	1760.775	39			

From the last tables, there are an effectiveness of the Social networks in developing the teaching performance of mathematics teachers. This result agree with the result of many studies as: (Lenox & Coleman 2010) , Lockyer ; Patterson,2008, Wolf,2009. The result recommended that work on the development of intensive training to clarify the objectives and methods of use and activation of Social Networking in Professional Development, and give Attention to the provision of Computers and wireless internet access in schools, teacher training on using social networks, work to develop a strategy to activate these networks formally within the curriculum, and to encourage and support models and successful experiences in this field and published this deployment.

2.6. The suggestions:

- Involving the social networks in Teachers professional development
- Doing more studies about using WEB2 in Teachers professional development

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4th International Conference on New Horizons in Education

The effectiveness of music in grammar teaching on the motivation and success of the students at preparatory school at Uludağ University

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Abstract

The purpose of this study was to determine the effectiveness of music in grammar teaching to university students. The study was conducted with elementary level students at School of Foreign Languages at Uludağ University. Two participating groups each composed of 19 students were selected randomly. The control group was taught in traditional methods without any use of audio materials. The experimental group was taught the same grammatical structure with the help of selected songs and class activities including singing with musical instruments. The data were collected through a pre-test and a post-test which measured students' grammar competence. The test results of both groups were scored and compared. In order to evaluate motivation of the experimental group, a survey was conducted.

Keywords: Grammar Teaching, Motivation, Music

1. INTRODUCTION

Today, many researchers in the realm of English Language Teaching (ELT) have emphasized the contribution of utilizing various educational tools to enhance foreign language learning. Brown (2001) states that a variety of techniques in language classes will ensure that a maximum number of students will be reached. Thus, he suggests using visual and auditory techniques and instruments to support interaction among learners. Music is one of the most efficient instruments serving this purpose. According to Speckman (2004), music is a common instructional tool in second language classrooms. Since music is a pedagogical resource for language learning, songs have become an integral part of our language experience (Cruz-Cruz, 2005).

Sağlam and Kayaoğlu (2010) emphasize the importance of music in ELT context since they regard music as a potential device in order to promote language abilities. On the importance of using music in language teaching, Edwards (1997) points out as following:

Music can be used in a second language setting to lessen anxiety and lower the affective filter, promote self-esteem, increase motivation to learn a new

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language, address multiple intelligences, aid in memory retention and increase cultural awareness and appreciation.

Mizener (2008) states that singing and other musical activities provide an enjoyable means of practicing language skills. Jolly (1975) states that there is a close relationship between language and music since both entities have significant common elements and similarities. In her study on the effects of songs in foreign language learning, Jolly used songs in Japanese conversation courses for two semesters. At the end of the term, she asked her students to rate the songs according to their usefulness. Based on the empirical observations, she concludes that the songs served both psychological and educational needs of the learners.

McCarthy (1985) makes a good case for using music in language development. He maintains that skills in word recognition, comprehension, reading study, and literary appreciation are reinforced by singing songs. He further states that performing songs and rhymes provides practice in rhythm, form, dynamics, and mood concepts and skills common to language and music.

Mashayekh and Hashemi (2011) point out that the role of music in learning can be described in terms of enhancement of social harmony, motivation force, and tool for learning. They suggest that language teachers should familiarize themselves with the pedagogical applications of music in language classes and the effects of music on thought and behavior of the learners. These features of songs facilitate not only academic success of learners but also the atmosphere of the learning environment and learners' motivation. With regards to the effects of music on learners' motivation, Ur (1999) states that entertainment produces enjoyment, which in return adds motivation. She also proposes that appropriate grammar focusing techniques should be as lively and intrinsically motivating as possible. Brown (2001) underlies the importance of motivating activities which appeal to learners' interests and goals. He regards singing songs as a way to lower learners' inhibitions and to encourage them to use their right-brain processing.

Music and songs may help learners reduce their anxiety and stress when learning a foreign language. On the effect of music and melody to reduce stress and anxiety, Keskin (2011) emphasizes that activities which make use of songs have positive effects on students' language learning process. These activities also help them to be encouraged toward foreign language learning. According to Çakır (2006), audio-visual materials are a great help in stimulating and facilitating the learning of a foreign language. He points out that all audio visual materials have positive contributions to language learning as long as they are used at the right time, in the right place (as cited by Keskin, 2011).

According to Sariçoban (2000), utilizing songs in class environment not only amuses students but also helps them feel relaxed and get rid of their negative attitudes towards a foreign language learning. Sariçoban (2000) underlies the effects of songs in language classrooms by regarding them as one of the most enchanting and culturally rich resources to be used in language classrooms. He states that songs offer a change from routine

classroom activities. He also points that if selected properly and adopted carefully, a teacher should benefit from songs when teaching grammar. As for the teaching implications, he points out as following:

...the use of songs in language classrooms provides many advantages. They entertain and relax the learners while they are learning or practicing a structure, and they often eliminate the students' negative attitude towards learning. Through providing authenticity and context they make the grammar points more understandable and easy.

Abrate (1983) states that there are many benefits of utilizing popular songs such as holding attention and interest of students, introducing native and colloquial use of the language, presenting cultural phenomena and points of view, providing device and context for learning and creating an entertaining alternative to textbook study. Abrate also states that songs can be utilized to teach vocabulary and listening comprehension, grammar, and many other language skills. She suggests making use of various useful exercises serving this purpose.

Maria Luisa Cruz- Cruz (2005) conducted a study to determine the effectiveness of selected music and songs on teaching grammar and vocabulary. She concludes that music and songs can be an effective instructional supplement to teaching English grammar and vocabulary. She adds that the use of appropriate music can make learners feel energetic and motivated.

Smith (2003) states that music and language are closely related systems and beside the motivating effect or the change of pace they bring, serious issues affecting academic success can be addressed as well. Most of the research indicates that language processors in our brains also help us process harmony in musical relationships (Patel, 2008). According to Trollinger (2010), the study of language in relationship to music perception shows strong relationships between musical perception and processing with language. On the relation between music and language Trollinger points out as following:

Most imaging research about the brain and music involves studies of instrumentalists, instrumental training, and musical development that show a great amount of activity in Broca's area when processing musical melody, processing rhythm, and performing on an instrument. These findings have led many brain researches to conclude that instrumental musical training, musical perception and processing and language are strongly connected.

Moreover, Maess & Koelsch (2001) point that neurological research has shown that musical and lingual processes occur in the same section of brain, and there are significant similarities between musical and lingual syntax. Schön (2005) states that they found a strong overlap of the regions involved in language, music, and song processing. These findings support the hypothesis that the linguistic and melodic components of songs are

processed in interaction. Cruz- Cruz (2005) states that utilizing songs in teaching helps enhance integration and create a link between the right brain's processing of music and rhythm and the left brain's processing of verbal information. Considering these integration, the importance of using songs in language teaching can be regarded as a crucial factor to enhance learning.

2. METHODOLOGY

The present study was conducted with elementary level students at School of Foreign Languages, Uludag University in 2012-2013 academic year, spring term. Two groups each composed of nineteen students were selected randomly. One of the classes was selected as the experimental group while the other as the control group. All of the students are native speakers of Turkish.

At the beginning of the study, the grammar points to be studied were selected from the school curriculum. In order not to stay behind the pacing schedule, limited number of grammar subjects were selected. For the same reason again, the amount of time was restricted to ten days. The grammatical structures to be studied were *Present Simple*, *Present Continuous*, *Simple Past*, *Be: Future (will)* and *Past Tense (was, were)*.

As for the selection of the songs, three main criteria proposed by Abrate (1983) were applied. These criteria were the students' ability, the musical accompaniment, and the speed of the song. When determining the songs to be utilized for the study, the language and the speed of the songs, and students' level were all taken into consideration. In terms of grammar, the lyrics were easily comprehensible with the correct use of grammar in parallel with the grammar structures to be taught. The selected songs for the study were *Wonderful Tonight* by Eric Clapton, *The Way You Are* by Bruno Mars, *Lemon Tree* by Fool's Garden, *Killing me softly* by Fugees, *Bang Bang* by Nancy Sinatra, and *Oue Sera* by Jay Livingston, Ray Evans. With regards to musical aspect, songs with catchy and simple rhythm were selected. The songs had short utterances and motives with adequate repetitions. The definitions of the unknown verbs in the songs were given by the instructor.

In order to evaluate and compare the level of both groups, students were given a pre-test and a post-test. The pre-test consisted of 15 questions measuring the students' existing knowledge of grammar structures. Students were to answer 5 questions by filling-in-the blanks, and 10 questions from multiple choice section.

In both groups, grammar points were introduced in the same way. After greetings, taking attendance and lead-in activities, the grammar points were explained explicitly by the instructors and the students were asked to do the exercises in the course book. Following the exercises, the students created their own exercises and worked on the structure of the sentences. These steps were the same in both groups but the next step was different. In the experimental group, the students listened to English songs twice and did exercises including fill-in the blanks, correcting the errors and choosing the correct verbs. Each song activity lasted ten minutes. These activities were

done in eight lessons. In the last lesson, the songs were performed with the guitar played by two music teachers. The students participated to the lesson actively by singing.

On the last day of the study, both groups were given a post-test which included fifteen questions. The students were to answer five multiple-choice and ten fill-in-the blanks type of questions in the test. Following the post-test, the experimental group was also given a survey which evaluated their motivation. There were four questions in the survey which aimed to analyze the students' thoughts on the study.

2.1. STATISTICAL METHOD

The results of Box's M test that was applied to the data obtained from the study verified that variation covariance matrix was homogenous. The suitability of the data according to the normal distribution was controlled via Anderson Darling test. It was observed that the collected data met the pre-requisites of the parametric tests and repeated measurement ANOVA was applied.

In the study, repeated measurement ANOVA technique was applied to the values of the tests graded out of 100. In the trial, group factors have two levels namely teaching English with classical method and by means of music. Time factor has two levels namely as pre and post tests. Repeated measurements were realized at the levels of time factor.

3. RESULTS

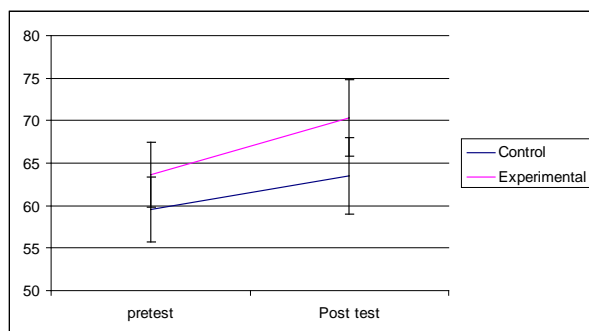
The results of the analysis of variance applied to the data have indicated that the group*time interaction and differences between the averages of group are not statistically significant. However, the differences between the averages of pre- and post-tests are statistically significant ($P < 0.05$).

Table 1. The level and sub-group averages of the factors applied in the study

	Pretest (mean±Std Error)	Post test (mean±Std Error)	Total (mean±Std Error)
Control (mean±Std Error)	59.58±3.84	63.47±4.51	61.53±3.82
Experimental (mean±Std Error)	63.63±3.84	70.37±4.51	67.00±3.82
TOTAL	61.61±2.72B	66.92±3.19A	

Analyzing Table 1, it is understood that the average value of the post test is 66.92, while the average value of the pre-test is 61.61, which points that the difference between these averages is not statistically significant. This difference is shown on the average values with Latin letters. It is also seen that the results of the post-tests are higher than that of the pre-tests. Although the average values are not regarded as statistically significant, the numeric size of the average values of the experimental group (67.00) is higher when compared to the average values of the control group (61.00).

Table 2. The level of success



The increase of the students' performance on the post-tests is shown in the graph in Table 2. The graph indicates that there has been an increase of four points in the control group, while seven points in the experimental group.

Table 3. Students' responses to the survey on the frequency of using songs in grammar lessons

	N	%
Some parts of every lesson	15	79
Once a week	4	21
Once a month	-	-
Never	-	-
Other	-	-

As shown in Table 3, the responses of the experimental group to the question of the survey on the frequency of using songs in grammar lessons have revealed that 79% of the students would like songs to be used in some

parts of every lesson, while 21% of them would like them to be utilized only once a week. This means that 100% of the students would like their grammar lessons assisted with song activities at least once a week.

Table 4. Students' responses to the survey on the use of songs as teaching materials

	N	%
Using songs in lessons increases my interest and sympathy towards the lessons.	12	63
I think songs should be utilized more often in grammar lessons.	11	58
Utilizing from songs make grammar lessons more enjoyable.	11	58
I find it useful to learn and practise grammar with songs.	10	53
I can memorize grammatical structures more easily with songs.	9	47
I can memorize vocabulary more easily with songs.	9	47
I do not find it useful to use songs in grammar lessons.	-	-
I get distracted when songs are used in lessons.	-	-

Table 4 shows the students' responses to the question of the survey on the use of songs as teaching materials. For this question, the students have chosen more than one option. Accordingly, 63% of the students have stated that using songs in lessons have increased their interest and sympathy towards the lessons. 58% of the students have stated that utilizing from songs in grammar lessons has made the lessons more enjoyable. 53% of the students have stated that they have found it useful to learn and practise grammar with songs. 47% of them have stated that they can memorize the grammatical structure and vocabulary more easily with songs.

The students are also asked to evaluate their level in grammar lessons. The results indicate that 16% of the students (N=3) have regarded themselves as excellent while 37% of them (N=7) as good, 37% of them (N=7) as average, and 10% as poor (N=2). Among the students, those who consider themselves as weak in terms of grammar have stated that they have found it useful to learn grammatical structures with the help of English songs.

As for the last part of the survey, the students have stated their own comments on using songs in grammar lessons. Some of the quotations of the students are as following:

“Song activities help us learn better. Since grammar is repetitive and monotonous, songs can make it more enjoyable. I think they should be utilized more.”

“Grammar lessons require a lot of memorization, and thus, they are monotonous. Music and songs have made them more enjoyable. Moreover, it is useful to memorize grammatical points with the help of songs.”

“It is good to have diversities and variations in lessons. Memorizing lyrics makes it easier to learn grammar and new vocabulary.”

“I usually get bored in grammar lessons, but doing classroom activities with songs have made me enjoy the lesson. I think teachers should use songs in other lessons, too.”

This small-scale study was limited to ten days. If it had been extended, better results could have been gathered in terms of academic success of the students. As for the motivation of the students, expected results were obtained. The students' responses to the survey indicated that the songs and the activities related to them served both psychological and educational needs. Educationally, it is worth pointing out that the experimental group outperformed the control group in the post-test although the difference between the averages of the two groups is not statistically significant. In terms of motivation, most of the students stated that the songs created an enjoyable atmosphere and motivated them to learn a foreign language. This study needs more thorough research to analyze and evaluate the effects of songs on grammar teaching. More research could be carried out with songs to determine their effects on different aspects of language learning.

As language teachers, we should make use of audio-visual materials that will contribute to our students' success. Besides, we should seek ways to motivate our students as much as we can. Therefore, the benefits of songs should not be disregarded.

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4th International Conference on New Horizons in Education

The effects of demonstration experiments on intellectually disabled learners' understanding the science of chemistry

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Abstract

This research examines the effects of demonstration experiment and worksheet practices on slightly intellectually disabled students' understanding the science of chemistry and the fields of application. The students with slight intellectual disabilities attending job learning schools in Ankara were included in the research. At the implementation stage of the research, a demonstration experiment was done in relation to matter and its properties, and worksheets prepared were administered to the students. For data collection purposes, video and audio recordings of in-class interviews in addition to observations and worksheets were used. Consequently, the data were analysed and evaluated.

Keywords: demonstration experiment, worksheet, in-class interviews, students with intellectual disability, chemistry

1. INTRODUCTION

In the definition made by American Association on Intellectual and Developmental Disabilities (AAIDD), the term intellectual disability was used instead of intellectual retardation, and such individuals were described as "individuals with remarkable restrictions in mental functions and in certain adaptive behaviors and who are observed to have such limitations before they are 18 years old" (AAMR, 2002)^{1†}. Although the classification of individuals with intellectual disabilities is usually made on the basis of intelligence quotient scores, they are also classified medically, pedagogically and according to the degree of help they need. Classification on the basis of intelligence quotient scores has been accepted by AAIDD for a long time. According to this approach, individuals who are influenced by intellectual disability are divided into four as individuals with slight, moderate, severe and profound disability. In this classification, 70-55 represent slight intellectual disability while 55/50-35 represent moderate level disability, 40/35-25 represent severe disability, and 25 and below represent profound (very serious) intellectual disability according to the intelligence quotient scores received from intelligence tests; in addition to that, 85% of individuals having intellectual disability are those with slight intellectual disability (Özokçu, 2010).

Most of the children with slight intellectual disability acquire the academic skills and job skills necessary for them to survive semi-dependently or independently by the time they are sixth graders, and they develop excellent social and communicative skills in adulthood, and they are no longer called incompetent when they

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¹ American Association on Intellectual and Developmental Disabilities Mental Retardation - AAIDD, former name: American Association on Mental Retardation- AAMR

leave school (Heward, 1996). In the past, basic academic subjects such as literacy and arithmetics at the first stage of primary education and vocational education, job-labour at the second stage and in secondary education used to be emphasised as curricula for such children. Yet, at present, occupational education and the teaching of daily life skills are offered in the early years of primary school (Eripek, 2009). State and private schools are opened as special education vocational centres/schools for individuals who have completed primary education and who cannot continue general and occupational secondary education schools, needing special education, and who are under 23 years old to develop their basic life skills, to ensure their adjustment to society, to facilitate them to gain vocational knowledge and skills (MEB, 2012). Such students complete the primary and secondary education process with other students in the same schools. Generally speaking, mainstreaming– which may be defined as education of students with special needs together with their normal developing peers in the same schools (by preparing the grounds and offering support when necessary)- seems to be the most common and the most popular placement practice today in our country, as in developed countries.

Today, the education of students with special needs in general educational settings is on the increase. The fundamental thought underlying the placement of students with incompetence is to make sure that they receive education in the same settings with peers having no disabilities, as far as possible. Therefore, students with intellectual disabilities are placed in general education classes in many countries by taking the necessary precautions and making the preparations (Sucuoğlu, 2009). The basic aim of the curricula is to instil in individuals the social and daily life skills necessary for them to survive in the society independently. It is stressed that those students' learning objectives are similar to the normal peers' objectives, and that they are able to gain the skills in basic courses such as literacy, mathematics and science (Kaplan, 1996).

In recent years, when technology and science have been rapidly advancing, the importance attached to Science and Technology courses has been increasing; and the need for curricula to conform to the requirements of the modernity has become apparent (Saracaloğlu, Yenice & Özden, 2013). Thus, the curriculum for Science and Technology course in our country aims to “raise all the students- regardless of their individual differences- as science and technology literate people” (MEB, 2006). Scientific literacy was defined as the knowledge of what science is, in other words, as the knowledge of the nature of science (Lederman, 1998; McComas, Clough & Almazro, 2002; Shamos, 1995). The issue of how science should be taught, and the fact that the nature of science is a part of education have been discussed for years, and have been implemented through various programmes. Because science courses which are fused into the nature of science and effectively organised have considerable potential to provide students with skills to cope with problems they can encounter in real life (National Research Council (NRC), 1996, 2000). Individuals with special needs also receive education with their peers and they also have curiosity about the world. Besides, science courses, which are learnt through experiments, arouse students' natural motivation and make them willing to learn the science (Telli, Yıldırım, Şensoy & Yalçın, 2004). Chemistry, a major branch of science studies, which analyses the structure, properties, behavior and interactions of substances. Knowledge of chemistry has been used today in various fields from understanding the structure of living organisms to the solution of environmental problems (Kırbaşlar, Güneş, Avcı & Atalar, 2012). Thus, This research aims to examine the effects of demonstration experiment and worksheet practices with regard to “matter and its properties” on slightly intellectually disabled students' understanding the science of chemistry and the fields of application. The sub-problems of the research are:

1) What prior knowledge do the students with slight intellectual disability hold with regard to the science of chemistry and the fields of application?

2) What effects do demonstration experiments and worksheet practices have on slightly intellectually disabled students' understanding the science of chemistry and the fields of application?

2. METHOD

This research aims to question slightly intellectually disabled students' conception of chemistry and the science of chemistry. Therefore, the current situation was analysed with a qualitative horizon, without presenting any statistical data. Yıldırım and Şimşek (2011) define qualitative research as "the research in which the qualitative methods of data collection such as observations, interviews and document analysis are used, and in which a qualitative process is pursued so as to present the perceptions and events in a natural environment and in a holistic way".

2.1. Study Group

The research included a total of 10 students 5 of whom were female and 5 of whom were male with slight intellectual disabilities and who were attending the job learning schools in Ankara. They were in the 16-19 age range.

2.2. Data Collection Tools

2.2.1. Video and Audio Recordings of in-class Interviews: Face-to-face interviews or discussions enable researchers to interact with students and thus to question their configuration in details and to uncover it (Canpolat and Pınarbaşı, 2012). Therefore, video and audio recordings of in-class interviews were used in this research for the purposes of data collection, with prior permission from the parents.

2.2.2. Observations: This research employs unstructured field study, a type of observation. Such studies are conducted in the natural setting where the behaviour is actualized, and in most cases it is done through the method called "participant observation" in which the researcher takes part in the setting (Yıldırım & Şimşek, 2011). Participant observation was done by the researchers in this research. For the sake of detailing the data obtained via observations and of catching the elements unnoticed, the video recordings were also analysed.

2.2.3. Worksheets

2.2.3.1. Worksheet on "Matter and its Properties": In this worksheet, the students were asked to write the answers reached following the experiments to the questions "what colour?", "is it pulled by the magnet?", "does it dissolve in water?", "what colour is it when dissolved in water?" for "magnesium, salt, sand and copper (II) sulphate".

2.2.3.2. Worksheet of "Let's Separate Matters": The first stage of the two-stage worksheet was about the procedures of separating "the mixture of sand, wood, salt and water". With the demonstration experiment, the students were asked to write the separated and the remaining matters in each procedure. At the second stage, along with the demonstration experiment of separating "the mixture of oil and water" with separating funnel, they were asked to write in the picture of separating funnel in the worksheet what the liquids are at the bottom and at the top, and to write which liquid was in the beaker and which remained in the separating funnel.

2.3. The Application Process

During the applications made in a class hour, the students were first asked the questions: “have you heard of the science of chemistry before?” and “what does a person dealing with chemistry do?”, and thus identifying their prior knowledge of chemistry and attracting their attention to the demonstration experiment to be done afterwards were intended. Then the researcher gave examples from daily life (such as burning, cooking, etc), and thus wanted to help them understand the the place of chemistry in our life. Also with the two demonstration experiments containing the matters they encounter in daily life, the students were asked questions about the matters and offered explanations, and then they were asked to fill in the blanks in the worksheets handed out. The researcher also received help from the students during the experiment. While the researcher knowing the students closely (the one who works in a special education institution) did the experiment and made the explanations during the application, the other two researchers offered help with doing the experiment, did the observations and recorded the process with the video camera. In addition to that, two students whose writing skill had not sufficiently developed to write on their own were helped to write by repeating the spellings.

Having done the demonstration experiments and completed the worksheets, the students were asked the previously asked questions “have you heard of the science of chemistry before?” and “what does a person dealing with chemistry do?” again. Additionally, a discussion on the rules to obey while doing experiments in the lab was done. The students made some inferences by considering the researcher as a model.

2.4. Data Analysis

The answers given by the students to the questions in the worksheets, and the observation notes taken by the researchers were examined for data analysis. The video recordings of students’ in-class discussions were viewed, and their statements were analysed descriptively.

3. FINDINGS

In this part, the findings obtained through the descriptive analysis of the data concerning the research questions are described.

1) What prior knowledge do the students with slight intellectual disability hold with regard to the science of chemistry and the fields of application?

In the classroom discussion conducted, the students were firstly asked what a person dealing with chemistry does. Only a boy responded: “they do experiments” while the others approved of the answer and they remembered the concept ‘do an experiment’. Then no one answered the question “so what do they experiment about?”

2) What effects do demonstration experiments and worksheet practices have on slightly intellectually disabled students’ understanding the science of chemistry and the fields of application?

After the demonstration experiments had been done and the worksheets had been completed, the students were asked the previously asked questions “have you heard of the science of chemistry before?” and “what does a person dealing with chemistry do?” again. After the applications, the students responded to the questions as

“They work in labs”.

“They wear aprons while working in the lab”.

“They deal with matters from daily life”

“They do experiments with matters.”

In addition to

“Doing experiments.”

After the experiments, the students had a discussion on the rules to obey while doing experiments in the laboratory. By considering the researcher as the model, they made such inferences as:

“An apron should be worn in the lab.”

“Gloves should be used in the lab.”

“Glasses should be worn.”

“Materials should be clean when used.”

“One should be careful”.

On examining the worksheets, it was found that all the students had filled in the blanks correctly. Moreover, it was also found through the observations that they had curiosity about what to do while doing the experiments, that they were willing to help the researcher in doing the experiments, and that they said that they had never done such applications and they had not seen the materials used before.

4. CONCLUSIONS AND RECOMMENDATIONS

This research aimed to examine the effects of demonstration experiment and worksheet practices in relation to “Matter and its Properties” on slightly intellectually disabled students’ understanding the science of chemistry and the fields of application.

In line with the first sub-problem of the research, it was found that the students with slight intellectual disabilities had limited prior knowledge of the science of chemistry and the fields of application. When they heard the term “science of chemistry”, they only responded as “doing experiments”. The fact that they had prior knowledge of the concept of “doing experiments” could be attributed to the fact that they had received mainstreaming education and that they had taken the science course; and because they had received primary and secondary school education with their normal peers in the same schools. Education through mainstreaming is an educational application based on the principle that individuals with special educational needs receive their education (in combination with support services) with their peers with no disabilities in state as well as private institutions of pre-school, primary education, secondary education and informal education (MEB, 2012a).

In relation to the second sub-problem of the research, it was found that demonstration experiment and worksheet practices were influential in those students' understanding the science of chemistry and its fields of application. The students learnt that the science of chemistry dealt with various matters, experiments were done in this science, several materials were used while doing the experiments, and that various safety measures should be taken. Besides, it was observed that many of them were surprised while the experiments were being done, and it was remarkable that they said they had never seen such practices before. Science courses learnt through experiments arouse students' natural motivation and make them willing to learn science (Telli, Yıldırım, Şensoy & Yalçın, 2004). It is made sure in science courses that students gain knowledge about the natural world and thus they are presented learning experiences necessary for satisfying their innate curiosity (Carin, Bass and Contant, 2005). Literature review showed that research studies were available with students with intellectual disabilities using different methods of learning and teaching in the fields of mathematics, music, science and in the literacy skills (Sinoplu, 2009; Şahbaz, 2005; Jackson, 2005; Alston & Hampton, 2000; Demir, 2008; Güven, 2011; Frick, 1999; Armutçu-Arslan, 2008; Güler, 2008; Tokta, 2012). In research conducted by Jackson (2005), it was pointed out that the individualized teaching materials prepared by taking the students' handicaps into consideration were effective in handling those students' failure in science courses stemming from their disabilities. Demir(2008), in another study on the other hand, stated that the individualised teaching material which was presented through staged teaching method was effective in teaching the organs of digestive system to mentally retarded children. However, research studies concerning intellectually disabled students' understanding the science of chemistry and compatible with this current study have not been encountered in literature.

Peer-assisted therapy should be included in forming the effective learning environments for mainstreaming students; joint learning and study groups should be formed for science activities; unit boards should be designed; simple, clear, plain statements should be used in all presentations; adaptation work should be done to materials and aids for use with disabled students, interaction should be kept alive with families, homework should also be adapted for those students, and arrangements should be done to the texts in the course books (Güzel Özmen & Karakoç, 2010). According to the data of 2009-2010 academic year obtained from the Ministry of Education, 36599 of the 128.515 students with special education needs attend special education schools while 15712 attend the special education classes in normal schools, 76204 receive mainstreaming education; and 71142 of them receive this education in primary schools and 5062 in secondary schools. The above mentioned figures exhibit the prevalence of mainstreaming education; yet research on this issue makes it clear that teachers as well as other staff taking part or who will take part in this application are in need of knowledge (Diken, 2010). Alston and Hampton (2000), however, suggest that parents and teachers are the people most influential in disabled students' making career in science studies in the future. Lewis and Doorlag (1987) stress that every individual – with or without a disability- holds properties peculiar to themselves, and that their development should be evaluated in themselves and those students with special needs should be able to receive education in normal school settings. In brief, it is important for disabled students to receive the education that normal students receive in that they gain survival skills and direct their lives. Therefore, teachers graduating from faculties of education should both be raised with awareness and supply of mainstreaming education and disabled students, and teachers should be offered in-service training in gaining awareness of disabled students in their classes and in orientating them so that they are reintegrated into the society.

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The effects of utilizing technology in classroom management

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Abstract

The purpose of this research is to determine the perspective of candidate teachers towards how educational technology affects classroom management, what its advantages and disadvantages are, what sort of classroom management challenges they may encounter, etc.

The majority of the candidate teachers involved in the research considers themselves as “good” or “very good” at using technology. It is seen that a great majority of the candidate teachers participating in the research support the use of technology for education, that the rate of those saying “I have sufficient information about how to use technology for education” is low (not as high as expected or it should be), that the rate of those thinking that the use of technology has a positive effect on classroom management is high, and that the rate of those considering the use of technology for education as a factor increasing teachers’ concerns is low. It is also seen that the rate of those who think that the use of technology must be very well known to achieve good classroom management is quite high. According to the findings of the research, the rate of the participants saying “The use of technology for education brings along the increase of undesired behaviors in the class” is low. A significant number of the participants chose to stay “neutral” to the statement “the use of technology for education provides an environment for the disruption of the lesson flow”. The number of those agreeing with the statement “the use of technology for education results in the increase of the number of students who are referred to disciplinary committee” is high. The number of the participants agreeing with the statement “The introduction of technology into classroom environment has caused changes in the nature of undesired student behaviors” was also found to be high.

Keywords: classroom management, educational technologies, the use of technology for education

1. INTRODUCTION

Technology has been developing rapidly in our age and it has influenced every aspect of our life as well as education and teaching. In our country, the use of technology for education is considered to be the means of catching up with developed countries by improving quality and a great deal of investment is made on this field.

Using technology to enable learning through the creation and communication of information is a time-honored tradition. More than 5,000 years ago, the invention of writing spurred the first information revolution, making it possible for one generation to accumulate information and communicate with the generations that followed it. When printing was invented about 500 years ago, the second information revolution began, marked by mass distribution of the printed word. Just 50 years ago, the invention of computers ushered in the third information revolution, making it possible to transform raw data into structured information, to transform that

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information into knowledge, and to transform knowledge into action using intelligent software agents and robots (Reddy and Goodman, 2002:3).

The developing process of technology has affected each part of our life includes daily life equipments-economy-education-entertainment-etc. Education which is the most important aspect of societies makes direct changes into people' life. Because of this, we cannot examine the improvements in education by ignoring the improvements in technology. They are bounded strictly.

Technology is a greater force in our lives than it was 10 years ago, and this force is likely to accelerate. The increase is partly driven by the inherent value of technology. It is also driven by a set of powerful economic and institutional processes. It is difficult to be exposed to any of today's media without also being exposed to technology. Across the many forms of formal and informal communications that affect our lives, there is a constant message about the benefits of technology (Goodman, 2002:290). As it is mentioned above, the force of technology has accelerated the educational improvements. When the historical process of technology is studied carefully, the benefits of using technology in education have become the most important step in education. The developing of electronic technology has been lasting since it started years ago. As Schwartz and Beichner (1999:7) stated, the world of electronic technology was developing at breakneck speed. Three areas of technology that directly affect education were developing rapidly: computers, multimedia, and the information infrastructure. For many years, the effects of these technologies on the classroom were marginal. However, in recent years, due to a combination of the developing information infrastructure and the development of standards-based curricula, the impact of technology is beginning to have a profound effect on schooling.

Every country's educational system has shaped by this profound effect. In order to see the effects and the process of these changes in education, the changes in educational materials in Turkey can be exemplified. According to Usun, (2004) In the 1930s, Turkish schools had teaching materials such as maps, laboratory equipments, and film strip projectors for instructional use. Until the 1940s, mostly printed instructional materials were used in schools. Between 1950 and 1970, schools had technologies such as audio cassettes and overhead projectors. Distance education was first introduced to students in Turkey in 1974. During the 1970s, several new teaching materials were provided for schools and introduced to teachers. In addition, some big universities started to offer graduate programs aimed at training professionals in the field of educational technology. Though some of these traditional technologies are still in use to prepare students, educational policy makers in Turkey believe that schools must give students the knowledge and the skills they will need in the future. Because of this, computers have gained more importance than any other educational technology.

In today's conception, educational technology can be defined as an abstract concept or as a field of practice. First, the definition of the concept: Educational technology is the study and ethical practice of facilitating learning and improving performance by creating, using, and managing appropriate technological processes and resources (Januszewski and Molenda, 2008:1).

The end purpose of educational technology is using, putting learners into contact with appropriate technological resources under conditions conducive to learning. Before using can take place, the resources must be selected and evaluated by an instructor and a plan must be made for utilization (Molenda, 2008:168).

According to Baker, (2001:78-79) what the technology is intended to do is :

1. Technology to meet existing requirements more efficiently
2. Technology may address learning goals that cannot be met in other ways
3. Adaptive approaches to the acquisition of knowledge and skills

Educational technology can claim to improve the performance of individual learners, of teachers and designers, and of organizations as a whole (Molenda and Pershing, 2008:76). As it can be seen, when the definition and the purpose of educational technology are studied, it is clear that teacher's role is the most important and the most critical one. Because of this, in this part it will be focused on the role of teacher in the using of educational technology.

Teachers employ a range of instructional strategies and resources to match the variety of student skills and to provide each student with several ways of exploring important ideas, skills, and concepts. They understand how to work as facilitators, coaches, models, evaluators, managers, and advocates. They know how to utilize various forms of play, different strategies for grouping students, and different types of media and materials (Callahan and Switzer, 2001:231). For that reason, as a teacher, following and using educational technology is inevitable.

As schools introduce new technologies, teachers must learn how to use and apply them. Since hardware and software are changing more rapidly than ever before, there will be no point at which teachers can say that they know everything necessary. New software and upgrades of older programs are released continuously, and frequently the new capabilities and features are of real importance to students and teachers. As schools become wired and acquire a range of equipment, teachers will have to be able to make good use of e-mail, Web browsers, databases, digital cameras, video cameras, digital video editors, and much more. Teachers must keep upgrading their skills, and expanding their awareness of new technologies (Tiene and Ingram, 2001:254). As it is stated above, being innovative, answering the modern life's necessities in schools and fulfilling the students' needs to use technology in each parts of their life are the most important responsibilities of teachers in modern education system. With the modern education system, teachers' role in classes has started to change. As it was stated by Mendicino, Razzaq and Heffernan (2009) with recent advances in educational technology, teachers now have a multitude of tools to assist and enhance student learning and motivation. New intelligent tutoring systems that guide students through math problems much the same way human tutors do have been successful in helping students learn math in the classroom. Some systems attempt to imitate a human tutor by reproducing the interactive dialogue patterns and strategies that were likely to be used by a human tutor, whereas others provide immediate feedback by highlighting each step attempted in either red or green to indicate a right or wrong answer. They may also provide hint sequences to students asking for help.

It is clear that the rate of success in modern education system is related to integration technology into classroom. This encumbers teachers another outstanding responsibility. According to Hofer and Swan (2008-2009) technology integration is a very personal and situated undertaking for teachers. According to Overbaugh and Lu, (2008) in response to the need to train teachers to effectively integrate technology into elementary and secondary education, a teacher professional development program funded by a federal grant provided a selection of instructional technology integration courses to K-12 teachers.

The integration of information and communication technologies can help revitalize teachers and students. This can help to improve and develop the quality of education by providing curricular support in difficult subject areas. To achieve these objectives, teachers need to be involved in collaborative projects and development of intervention change strategies, which would include teaching partnerships with ICT as a tool. Teachers' attitudes are major predictors of the use of new technologies in instructional settings. Teachers' attitudes toward ICT shape not only their own ICT experiences, but also the experiences of the students they teach (Gulbahar and Guven, 2008).

The teacher's role as a principal gate- way to knowledge for the learner has been in progressive decline. Far more information than school students need is now being rapidly made accessible through ICT, much of it and a form that is attractive and easily assimilated. Thus, the role of the teacher changes to helping students to find / access what they need, to evaluate its source, relevance, and quality. Beyond these skills and capacities, the challenge for teachers will be in enabling students to construct and apply knowledge in ways that are accurate and valuable (Bentley and Hargreaves, 2003:346-347).

Classroom management is the orchestration of classroom life: planning curriculum, organizing procedures and resources, arranging the environment to maximize efficiency, monitoring student progress, anticipating potential problems (Lemlech, 1988:3). To manage a classroom means accepting differences in class and advancing them and also making a harmony of different sounds in such a way that an orchestra conductor does; that is, making it possible to reach these aims.

Technology playing a very efficient role in today's world naturally affects education, too. As science and technology is the most evident feature of modern society, it is apparently necessary to bring education a scientific and technological attribute. Therefore, it is more compulsory than ever to utilize technological resources and facility in teaching-learning process. Resolving the issues in our education system is only possible with education technology that provides us with a wide benefit from technological possibilities (Keser, 1995). In today's world, as a result of rapid development and change in technology, the structure of society changes rapidly, too; and in accordance with this, there comes out some differences in educational purposes, methods and teachers' roles (Cetin and Cetin, 2000).

Using teaching technologies effectively in school and class environment and conveniently for educational purposes contributes to enriching teaching aims. A teacher can increase the interest in a class using different materials and teaching techniques. Regarding this, multi-media and internet systems that have been generated as appropriate to educational purposes get more and more widespread in schools (Yalcinkaya, 2005: 92). To make lessons more effective and consistent, a teacher needs to support a class with various materials and also create a positive atmosphere (Cafoglu, 1992) Teachers being able to use technology easily and productively affects students in a positive way; it sets an example as to being able to use technology (Ozer, 1997). The more sense organs are included in learning, the better we learn and the more slowly we forget (Ozdemir, Yalin, and Sezgin, 2004:179). When materials are chosen properly, they make teaching techniques faster and easier and more individual (Yalcinkaya, 2005:92).

According to Carroll (2001:5) in networked schools and classrooms, students can acquire knowledge on a schedule determined by their own learning needs. Networked learning communities will replace our producer driven model of education with a "consumer driven" model in which learners play a very active role in shaping the content, process and pace of their education. Net-worked computers give educators and students their first real opportunity to tailor educational experiences to specific learning needs.

One compelling way teachers can support such possibilities is to have students use computer technologies as tools to generate, share, and argue about ideas. Consider, for example, a student-run newspaper. Word processors and desktop publishing tools support students' writing. Spelling checkers help the presentation. Spreadsheets can help students to manage the financial aspects of running the newspaper, and databases to organize and access relevant information. Thus, students learn not only how to use a wide range of computer applications but that, as students, they control computer technology and are responsible for the consequences of their computer-mediated action: namely, for their published ideas (Kahn and Friedman, 1998:167).

Many of us expect that using technology wisely and effectively in education can lead, over time, to a real revolution in how teachers teach and students learn. It will not happen quickly or easily, but it could happen. It will not happen if we simply use technology to continue our old ways of teaching. We all need to learn new ways to teach that take advantage of what the various technologies do best. Learning how to use new instructional strategies is likely to be a more challenging task than learning the technology itself (Tiene and Ingram, 2001:257). By the help of these determinations, principles of class management must be regarded as a new field in technological education and it must be improved according to the needs of new networked classes and the students members of technological world.

As Simon stated (2002:63), design of technology must follow, not precede, the task analysis. It is wholly inefficient and ineffective to begin with a favorite technology-whether it be television films, computer displays of virtual reality, World Wide Webs, or any other-and then seek out possible applications to educational tasks. That is like buying twelve dozen hammers, then searching for nails to pound. Instead, we must first discover which nails need pounding, and then what hammers can drive them home effectively. Technology must be the servant, not the master.

2. AIMS AND SIGNIFICANCE

2.1. Aims

The aims of this research is to determine the perspective of candidate teachers towards how educational technology affects classroom management, what its advantages and disadvantages are, what sort of classroom management challenges they may encounter, etc. In accordance with this basic objective, this study attempts to seek solutions for the following questions:

- 1- How do candidate teachers assess themselves regarding using technology?
- 2- To what extent can they keep up with new technology?
- 3- What are the ways that they follow to learn to use technology?
- 4- Which technological components do they use? At what level do they use them?
- 5- To what extent do they support the utilization of technology for education?
- 6- What are their opinions about whether the use of technology for education is a factor that incurs concerns or not?
- 7- What do they think of the idea that good classroom management requires a very good command of technology?
- 8- What are their opinions about the way the utilization of technology for education influences classroom management?

2.2 Significance

When the literature is reviewed, it can be seen that there are not many studies aiming to determine the opinions of candidate teachers regarding the influence of the use of technology on classroom management. The findings to be obtained at the end of this research are expected to contribute to education and educational practices in various aspects. The identification of prospective teachers' self-evaluation regarding the use of technology, the technological components they utilize, the level at which they utilize these components as well as their views on how educational technology influences classroom management is considered to be important in the sense that it may provide the authorities with ideas on what to do at a teacher training institution in order to overcome the deficiencies that candidate teachers might have during undergraduate education. Additionally, the responsibilities of teacher training institutions for developing the education will be emphasized in this study. The data obtained through the research will also pave the way for more realistic and consistent judgments regarding classroom management and the use of technology in education.

3. METHOD

3.1. Research Model

The research is in scanning model. The answers provided by candidate teachers in personal information form and in the questionnaire aiming to determine the views on how the use of technology affects classroom management were analyzed and the outcomes were discussed in the light of the findings.

3.2. Population and Sample

The population of this research consists of the students of Primary School Teaching, Social Sciences Teaching and Science Teaching departments of faculties of education. The sample of the research is formed by 336 students who are studying at Primary School Teaching, Social Sciences Teaching and Science Teaching departments of Hasan Ali Yucel Faculty of Education at Istanbul University. A personal information form and a questionnaire form were given to the students constituting the sample in the second term of 2013-2013 academic year. The data obtained from 336 students, who filled the personal information form and the questionnaire completely, was taken into consideration.

3.3. Data Collection Tools

The personal information form and the questionnaire form prepared by the researcher were used in this study. The questionnaire consists of items aiming to determine the views of candidate teachers on the influence of the use of technology in education on classroom management. The questionnaire form has 12 items, each of which requires the selection of one of the following options: agree – neutral –disagree.

The personal information form was used to gather information about students' gender, the programs and the grades at which they are studying, their self-assessment regarding the use of technology, whether they follow new technologies, how they have learned to use technology, the technological components they use (computer, overhead projector, computer and projector device, video/TV (projecting onto a big screen), audio recording devices, smart board, educational tablets) and at what level they use these components.

3.4. Procedure

The data collection tools were applied at the beginning of the second term of 2013-2013 academic year. Before the application of the data collection tools, general info about personal information form and the questionnaire was given to the students. After the personal information forms and the questionnaires filled by the students were checked, those which were deficient or improper were eliminated and excluded from the evaluation process. The data obtained was analyzed in parallel with the objectives of this research.

Frequency and percentage values were used for the answers given by the candidate teachers involved in the research for the items on the personal information form and the questionnaire. The findings obtained were presented in table forms.

4. FINDINGS AND INTERPRETATION

Table 1. The Numbers and the Percentages Regarding the Genders, Programs and Grades of the Candidate Teachers Participating in the Research

		f	%
Gender	Female	228	67,9
	Male	108	32,1
	Total	336	100,0
Program	Primary School Teaching	100	29,8
	Social Sciences Teaching	121	36,0
	Science Teaching	115	34,2
	Total	336	100,0
Grade	2nd grade	111	33,0
	3rd grade	122	36,3
	4th grade	103	30,7
	Total	336	100,0

As it is seen in Table 1, 67,9% of the candidate teachers participating in the research is female, while 32,1% is male. Primary School Teaching and Secondary School Teaching professions in Turkey are mostly preferred by women.

Table 2. The Numbers and the Percentages of the Answers Given by the Participants to the Questions “How Would You Evaluate Yourself in Terms of Utilizing Technology?”, “Can You Follow Newly-Developed Technologies?” and “Please Mark the Way or Ways That Helped You Learn to Use Technology”.

		f	%
How would you evaluate yourself in terms of utilizing technology?	Very good	45	13,4
	Good	157	46,7
	Average	124	36,9
	Weak	10	3,0
	Total	336	100,0
Can you follow newly-developed technologies?	Yes	112	33,3
	Partially	212	63,1
	No	12	3,6
	Total	336	100,0
Please mark the way or ways that helped you learn to use technology	Through the lessons I have studied at university	55	16,4
	By attending a course	14	4,2
	On my own	267	79,5
	Total	336	100,0

When Table 2 is analyzed, it is seen that only 3% of the candidate teachers participating in the research consider themselves to be “weak” at using technology, that 63,1% of the participants can partially follow newly-developed technologies, that 79,5% of the participants answered the question “please mark the way or ways that helped you learn to use technology” by choosing “on my own” option, whereas 16,4% chose the option “through the lessons I have studied at university”. All these results indicate that the members of the newer generation of teaching (candidate teachers) consider themselves to be good at using technology. Today, almost everyone, individuals from all socio-economic layers, meet and start to use technology at an early age. 63,1% of the participants answered the question “Can you follow newly-developed technologies?” by choosing the option “partially”. Today, technology is developing at a stunning speed; it is almost impossible to keep up with technological developments. The item “please mark the way or ways that helped you learn to use technology” was marked by 79,5 % of the participants with the option “on my own”, while 16,4% of the participants stated that they learned to use it through the lessons they studies at university. This result suggests that Teaching Technologies and Material Design class, which is a 3-credit compulsory class given at faculties of education, affects the process of learning how to use technology only insignificantly.

Table 3. The Numbers and the Percentages of the Answers Given by the Participants to the Question “Which Technological Components Do You Use and at What Level Do You Use Them?”

	Very good		Good		Average		Weak		Total	
	f	%	f	%	f	%	f	%	f	%
Computer	60	17,9	208	61,9	60	17,9	8	2,4	336	100,0
Overhead projector	22	6,5	76	22,6	119	35,4	119	35,4	336	100,0
Computer & projector	45	13,4	148	44,0	109	32,4	34	10,1	336	100,0
Video/TV	70	20,8	151	44,9	87	25,9	28	8,3	336	100,0
Audio recording tools	70	20,8	157	46,7	86	25,6	23	6,8	336	100,0
Smart board	17	5,1	89	26,5	107	31,8	123	36,6	336	100,0
Educational Tablets	29	8,6	97	28,9	114	33,9	96	28,6	336	100,0

When Table 3 is analyzed, as for the technological means used by the candidate teachers involved in the research and their levels of using those means, it is seen that the majority (61,9%) of the participants can use the computer “well”, whereas the rate of those who consider themselves to be “weak” at using the computer is 2%. The majority (35,4%) regards themselves to be “weak” at using the overhead projector. It is seen that 10,1% of the participants consider themselves to be “weak” at using the computer and the projector together. 44,9% of the participants regard themselves as “good” at using Video/TV (projecting onto a big screen). 46,7% of the participants regard themselves as “good” at using audio recording tools. 36,6% of the participants consider themselves to be “weak” at using smart boards, which have become commonly used at Turkish schools in recent years. Similarly, 28,6% of the participants regard themselves as “weak” at using an educational tablet, another

means of technology introduced to Turkish educational institutions as well as our daily lives lately. Particularly, the high number of participants who consider themselves to be inefficient in using smart boards and educational tablets indicates that Educational Technologies and Material Design classes lack the emphasis on the use of these modern educational technologies. This result suggests that prospective teachers will most probably have difficulties when they meet smart boards and educational tablets.

Table 4. The Number and the Percentages of the Answers Provided to the Questions in the Questionnaire About the Influence of the Use of Technology on Classroom Management

Items	Agree		Neutral		Disagree	
	f	%	f	%	f	%
1- I support the use of technology for education.	312	92,9	21	6,3	3	0,9
2- I have sufficient information about how to use technology for education.	175	52,1	120	35,7	41	12,2
3- I think that educational technology has a positive effect on classroom management.	276	82,1	46	13,7	14	4,2
4- The use of technology in education is a factor that increases teachers' concerns.	59	17,6	116	34,5	161	47,9
5- To achieve good classroom management, a teacher must know how to use technology very well.	295	87,8	34	10,1	7	2,1
6- The use of technology for education affects teacher-student communication positively.	262	78,0	60	17,9	14	4,2
7- The use of technology for education affects the communication among students positively.	234	69,6	87	25,9	15	4,5
8- The use of technology for education affects the classroom atmosphere positively.	251	74,7	67	19,9	18	5,4
9- The use of technology for education brings along the increase of undesired behaviors in the class.	48	14,3	122	36,3	166	49,4
10- The use of technology for education provides an environment for the disruption of the lesson flow.	85	25,3	120	35,7	131	39,0
11- The use of technology for education results in the increase of the number of students who are referred to disciplinary committee.	76	22,6	130	38,7	130	38,7
12- The introduction of technology into classroom environment has caused changes in the nature of undesired student behaviors.	145	43,2	143	42,6	48	14,3

When Table 4 is analyzed, it is seen that the majority of candidate teachers (92,9%) involved in the research support the use of technology for education, that the rate of those saying "I have sufficient information about how to use technology for education" is low (not as high as expected or it should be) (52,1%), The rate of those who think the use of technology has a positive effect on classroom management is high (82,1%), and that

the rate of those who consider technology as a factor that increases teachers' concerns is low (17,6%). It is also seen that the rate of those saying "to achieve good classroom management, a teacher must know how to use technology very well" is quite high (87,8%). In addition, the rate of those saying "The use of technology for education affects teacher-student communication positively" is high (78,0%), similar to the rate of those saying "The use of technology for education affects the communication among students positively" (69,6%). The rate of those thinking that "the use of technology for education affects the classroom atmosphere positively" is 74,7%.

The rate of the participants saying "The use of technology for education brings along the increase of undesired behaviors in the class" is low (14,3%). 35,7% of the participants chose "neutral" option for the statement "the use of technology for education provides an environment for the disruption of the lesson flow". The rates of those choosing "neutral" and "disagree" options for the statement "the use of technology for education results in the increase of the number of students who are referred to disciplinary committee" were found to be the same (38,7%), whereas the rate of those agreeing with this statement is 22,6%. The rate of those who disagree with the statement "the introduction of technology into classroom environment has caused changes in the nature of undesired student behaviors" is 43,2%.

When the number and the percentages of the answers provided to the questions in the questionnaire aiming at determining the influence of the use of technology on classroom management were analyzed, it is pleasing to see that the number of those who are in favor of using technology for education is quite high. The use of technology is inevitable in education, just like it is in daily life. However, the low rate of those saying "I have sufficient information about how to use technology for education", which is 52,1%, is a worrying fact. The high rate of those thinking that the use of technology for education affects classroom management positively can be considered as a remarkable sign for the use of technology to achieve good classroom management. Similarly, the low rate of those considering the use of technology for education as a factor that increases concerns shows that teachers do not suffer from technophobia. It is quite pleasing to see the high rate of the participants saying that a teacher must know how to use technology very well to achieve good classroom management. This result demonstrates that the awareness levels of candidate teachers regarding the effects of utilizing technology in classroom management are high. Besides, the high rates of those who think that the use of technology for education affects teacher-student communication positively and that the use of technology for education affects the communication among students positively also promote the use of technology as a factor to support the establishment of a good communication in the classroom. Likewise, the high rate of those thinking that the use of technology for education affects the classroom atmosphere positively shows that candidate teachers establish a meaningful link between the use of technology and classroom management.

According to the findings of this research, it is seen that the rate of candidate teachers saying that the use of technology for education brings along the increase of undesired behaviors in the class is low. This result indicates that the number of undesired behaviors will decrease when a good command over technology is achieved. The fact that the rate of those agreeing with the statement "the introduction of technology into classroom environment has caused changes in the nature of undesired student behaviors" is high demonstrates candidate teachers' need to learn how to successfully manage a class when educational technologies are used, rather than conventional classroom management skills.

5. CONCLUSION AND SUGGESTIONS

As a phenomenon of today, like people with different professions, teachers are also urged and even obliged to use technology. Turkish educational system necessitates technology for quality and a significant amount of financial sources is spared for technology. The majority of the candidate teachers involved in the research considers themselves as “good” or “very good” at using technology. The majority of the candidate teachers can only partially follow the newly-developed technologies. Most of the participants stated that they learned to use technology “on their own”. Only a minority of them stated that they learnt it “through the lessons they studied at university”. As for the technological means used by the candidate teachers involved in the research and their levels of using those means; it has been found that they are “good” at using the computer, and that the number of those who consider themselves to be weak at using smart boards and educational tablets is high. It is seen that a great majority of the candidate teachers participating in the research support the use of technology for education, that the rate of those saying “I have sufficient information about how to use technology for education” is low (not as high as expected or it should be), that the rate of those thinking that the use of technology has a positive effect on classroom management is high, and that the rate of those considering the use of technology for education as a factor increasing teachers’ concerns is low. It is also seen that the rate of those who think that the use of technology must be very well known to achieve good classroom management is quite high. In addition, the rate of those saying that the use of technology for education affects teacher-student communication positively is high, similar to the rate of those saying that the use of technology for education affects the communication among students positively. The rate of the participants thinking that the use of technology for education has a positive effect on classroom atmosphere was found to be significantly high.

According to the findings of the research, the rate of the participants saying “The use of technology for education brings along the increase of undesired behaviors in the class” is low. A significant number of the participants chose to stay “neutral” to the statement “the use of technology for education provides an environment for the disruption of the lesson flow”. The number of those agreeing with the statement “the use of technology for education results in the increase of the number of students who are referred to disciplinary committee” is high. The number of the participants agreeing with the statement “The introduction of technology into classroom environment has caused changes in the nature of undesired student behaviors” was also found to be high. Based on the findings of this research, it is possible to suggest the following:

- To help candidate teachers follow newly-developed technologies, faculties or universities can procure these technologies and share them through renting, lending, etc.
- The use of modern educational technologies (particularly the use of smart boards, interactive boards and educational tablets) should be emphasized in educational technologies and material design classes. A candidate teacher should be graduated only after mastering the use of these technologies.
- In classroom management classes as well as educational technologies and material design classes, the focus should be on how to successfully manage a class when educational technologies are used, rather than conventional classroom management skills.
- The classes should be mostly practical rather than theoretical.

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4th International Conference on New Horizons in Education

The Effect of Harmonic Accompaniment on Primary Two Children's Developmental Music Aptitude

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Abstract

Studies on children's musical development have received increased attention than previously. The present study aims to investigate the effect on the use of bamboo xylophone as harmonic accompaniment on primary two children's music development. The study was focused on the following specific problems (1) Is there a difference with an additional harmonic accompaniment in the development of tonal aptitude in primary two children? (2) Is there a difference with an additional harmonic accompaniment in the development of rhythm aptitude in primary two children? Four classes ($n=80$) from two public schools in the city of Kota Kinabalu were randomly assigned to two different groups: a control ($n=40$) and an experimental group ($n=40$). Both groups of children sat for a pre-test and post-test on Gordon's Intermediate Measures of Music Audiation tonal subtest (IMMAT) and rhythm subtest (IMMAR). The results indicated no significant difference in the music aptitude test between the groups ($p > .05$). However, the mean gain score percentage of children in the experimental group increased more than that of the control group. The results suggest that a future study should include longitudinal data, larger sample size, different types of musical instruments and children's interest in learning music.

Keywords: Children's musical development; harmonic accompaniment; bamboo xylophone; tonal aptitude; rhythm aptitude

1. Introduction

The nature of children's music aptitude development has received increased attention than previously in the United States, Korea, Taiwan, and other countries (Flohr, 1981; Guilbault, 2002; Lee, 2010; Levinowitz, 1989; Moore, 1984; Rho, 2004; Rutkowski, 1996). Music aptitude is the potential to achieve in music. Most people misunderstand aptitude and achievement. Music achievement is intellectual, a measure of what someone has learned in music (Gordon, 2007: 46). According to Gordon (2003: 13), a well-known music psychologist states, "music aptitude is a measure of children's potential to learn music; it represents inner possibilities". It may be another factor affect children singing accuracy. With appropriate music environment and music instruction, a child with high music aptitude should perform better in singing accuracy than those children with low aptitude.

Research relate on tonal aptitude and singing achievement showed different results. In Atterbury and Silcox (1993) study, results showed no significant difference between the middle and low aptitude students in their singing ability. However, a significant was found between students who had high aptitude and those with middle and low aptitudes. Hornbach and Taggart (2005) found that no meaningful relationships between singing achievement and scores on the Primary Measures of Music Audiation (PMMA) tonal aptitude subtest. They

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suggested that if singing is taught, ones' singing achievement can perform better. In contrast, Jaffurs (2000) concluded that singing achievement is related to tonal aptitude. In Rutkowski (1996) study found that a small relationship exists between use of singing voice and developmental tonal aptitude.

The Flohr Study (1981) examined the influence of short-term music instruction on young children's development of music aptitude. The results indicated that short-term music instruction has a positive effect on the musical development of young children. It seems important to know the extent of children's ability and their aptitude levels.

Previous research findings into the effectiveness of accompaniment have indicated different results in children's singing achievement. Petzold (1966) indicated that children experienced improved singing by using chords I, IV, and V accompaniment. Hale's (1977) study reported that the children sang better if they were using a three-step sequence after a year of music instruction that included both a melodic and harmonic piano accompaniment. Sterling's (1984) results indicated that children in grades 1, 3, 5, and 7 sang better with melodic replication and traditional tonal accompaniment than with chromatic and dissonant accompaniment. Gouzouasis (1987) reported that singing achievement seems to be influenced by the type of accompaniment. Simeon et al (2011) described with the combination of voice with bamboo xylophone as harmonic accompaniment effectively develops children's singing voices and their sense of tonality (Simeon et al., 2011).

In contrast, after a year of study, Atterbury and Silcox (1993) failed to find statistically significant differences in kindergarten children's singing accuracy when comparing those who received music instruction with and without piano accompaniment. Pelphey's (1998) findings indicated that no significant differences existed between groups who received music instruction *a cappella*, with piano or guitar accompaniment, or with compact disc recordings. Guilbaut's (2004) findings indicated that the use of root melody accompaniment did not help singing achievement in kindergarten and first grade children. However, she found that the experimental group children achieved better than those in the control group with regard to tonal improvisation.

It is important to know the extent of children's music development. The researchers continue to seek appropriate teaching strategies for improving it. In the elementary music classroom, musical instruments usually include percussion instruments, keyboard, piano and recorder for accompanying musical activities. However, there is lack of research on the importance of these instruments in music development. In addition, there are no studies about whether playing a bamboo xylophone as accompaniment facilitates musical development. In light of the scarcity of research, this study was designed to investigate the effects of bamboo xylophone as harmonic accompaniment on the developmental music aptitude of primary two children to gather information on the extent of children's potential in music. It may be important to examine whether the type of music instruction (song instruction with accompaniment versus song instruction without accompaniment) is an important factor in children music development. This study may also provide more insight into the development of music aptitude.

2. Method

2.1. Participants

This experimental research study was carried out over a period of 12 weeks of instruction. Four intact classes of 80 children ($n = 80$) were randomly selected from two public schools in the city of Kota Kinabalu, Sabah. One class from each school was assigned as a control group, while the other class was assigned as an experimental group. This study consisted of three stages: pre-test, music instruction, and post-test.

2.2. Design and Procedure

Following permission from the Ministry of Education, State Department of Education, the school, and the teachers, the children in the classes were randomly placed in either a control group to receive music instruction without bamboo xylophone accompaniment or in an experimental group with the bamboo xylophone as accompaniment for their music instruction. The respondents were all age 8, as this is within the developmental age of music aptitude.

Prior to the 12-week instruction period, children from the control and experimental groups sat for the Gordon's IMMA pre-test. The tonal and rhythm subtest was administered one week before the instruction period, using Gordon's (1982) IMMA test manual.

Both groups of children who participated in this study received music instruction for one hour per week during their regular music class schedule. All the music instruction and lesson plans in this study were based on the New Primary School Curriculum (KBSR) and were developed by the researcher, based on music learning theory and integrated music educational teaching methods. All class materials and instruments were provided by the researcher and the university. The music classroom activities for both groups' children included vocal warming-up exercises, singing, movement and playing percussion instruments.

Music instruction and lesson plans for both control and experimental groups were the same, except that the experimental group children received music instruction with bamboo xylophone as accompaniment, while the control group children did not receive music instruction with bamboo xylophone. Table 1 presents the differences in song instructions between the groups.

Table 1. Differences in song instructions between groups

Control Group	Experimental Group
Song was sung by researcher	Song was sung and played by researcher
Children echoed phrase by phrase	Children echoed phrase by phrase
Children sang <i>a cappella</i>	Children sang and played with harmonic accompaniment

During the 12 weeks of instruction, the researcher provided the music instruction to both the control and experimental groups. There was a need to have the same music instructor or teacher for all the music instruction, and to use the same music lesson plans to ensure a standard music approach to guide the children of primary two in playing the bamboo xylophone accompaniment.

After 12 weeks of instruction, the IMMAT and IMMAR subtests were re-administered to all the children as a post-test. The difference between the pre-test and post-test scores on the IMMAT and IMMAR tests served as the dependent measure for music development.

Results

3.1. Tonal Aptitude

The differences between the pre-test and post-test percentages of increased, decreased, and unchanged IMMAT scores are presented in Table 2. The IMMAT mean scores of both control and experimental groups improved between the pre-test and the post-test. Thirty-five students, or 87.5% of the control group students, improved their IMMAT scores; four students, or 10%, kept the same scores, and only one student, or 2.5%, had a lower IMMAT score. Nevertheless, the experimental group achieved slightly better improvement than the control group on IMMAT scores. Thirty-seven children, or 92.5%, of the experimental group children improved their IMMAT scores, 2 children, or 5%, kept the same scores, and only one child, or 2.5%, had a lower IMMAT score.

Table 1. Differences in song instructions between groups

Control Group	Experimental Group
Song was sung by researcher	Song was sung and played by researcher
Children echoed phrase by phrase	Children echoed phrase by phrase
Children sang <i>a cappella</i>	Children sang and played with harmonic accompaniment

Table 2. Comparison of IMMAT percentage changes by group

Type of Change	Control Group		Experimental Group	
	<i>n</i>	(%)	<i>n</i>	(%)
Increased	35	87.5	37	92.5
No Change	4	10	2	5
Decreased	1	2.5	1	2.5
Total	40	100	40	100

The difference between pre-test and post-test scores for the control and experimental groups is presented in Table 3. Children in the experimental group showed a significantly better mean score than the control group on the IMMA tonal subtest. The mean pre-test score for the experimental group increased from 31.725 ($SD = 2.46$) to 34.425 ($SD = 1.63$) for the post-test. The control group mean pre-test score was 32.5 ($SD = 2.38$) and increased to 34.625 ($SD = 1.78$) for the post-test. The mean gain score for the control group was 2.125 ($SD = 1.56$) while the mean gain score for the experimental group was 2.675 ($SD = 1.87$).

Table 3. Differences between pre-test and post-test means of the control and experimental groups in tonal aptitude

Test	Control Group (n = 40)			Experimental Group (n = 40)		
	Pre-Test	Post-Test	Mean	Pre-Test	Post-Test	Mean
	Mean	Mean	Gain	Mean	Mean	Gain
Tonal Aptitude	32.50	34.625	2.125	31.725	34.425	2.675

Figure 1 illustrates the pre-test and post-test means for the control and experimental groups in tonal aptitude. Both groups improved on their tonal aptitude after 12 weeks of instruction.

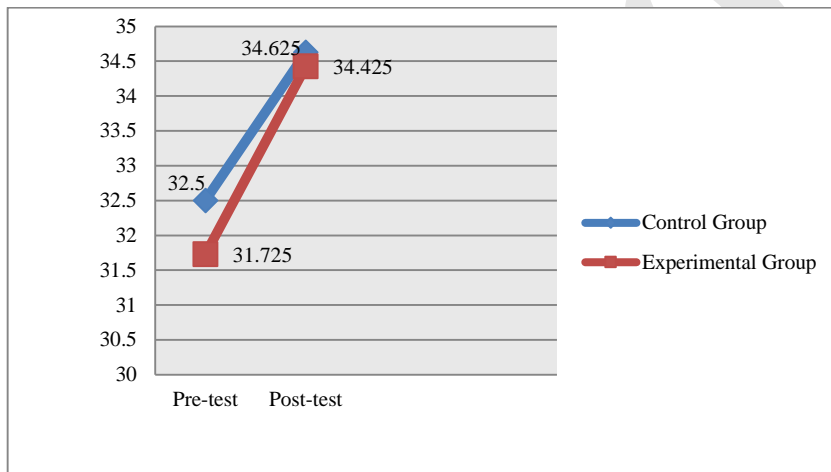


Figure 1. Pre-test and post-test on the IMMA tonal aptitude by group

A *t*-test for paired samples was used to examine whether there was a significant difference in mean gain scores from pre-test to post-test between the control and experimental groups. No statistically significant difference was found ($t = -1.529, p > .05$) for IMMA tonal aptitude between the control and experimental groups of the primary two children (see Table 4).

Table 4. Paired sample t-test comparisons of pre-test and post-test mean gain scores on tonal aptitude

Source	Control Group	Experimental Group	SD	t	p
	Mean Gain	Mean Gain			
Tonal Aptitude	2.125	2.675	2.275	-1.529	.134

No significant differences

2.2. Rhythm Aptitude

The differences between pre-test and post-test percentages of increased score, static score, and reduced score on IMMAR are presented in Table 5. The IMMAR mean scores of primary two children in both the control and experimental groups increased after the instruction period. Thirty-one children, or 77.5% of the control group, increased their IMMAR scores, 6 children, or 15%, kept the same scores and three children, or 2.5%, had lower IMMAR Scores. However, the experimental group achieved slightly better results than the control group. Thirty-seven children, or 92.5%, of the experimental group increased their IMMAR scores, 2 children, or 7.5%, kept the same scores and three children, or 7.5%, had lower IMMAR scores.

Table 5. Comparison of IMMAR percentage changes by group

Type of Change	Control Group		Experimental Group	
	n	(%)	n	(%)
Increased	31	77.5	32	80
No Change	6	15	5	12.5
Decreased	3	7.5	3	7.5
Total	40	100	40	100

The difference between pre-test and post-test scores in control and experimental groups is shown in Table 6. The experimental group showed more improvement than the control group on the rhythm aptitude test. The mean pre-test score was increased from 32.15 (SD= 1.64) to 33.925 (SD= 1.64) for the post-test. The control group mean pre-test score was 31.775 (SD=2.17), and it increased to 33 (SD= 1.40) for the post-test.

Table 6. Differences between pre-test and post-test mean of the control and experimental groups on rhythm aptitude

Test	Control Group (n=40)			Experimental Group (n=40)		
	Pre-test Mean	Post-test Mean	Mean Gain	Pre-Test Mean	Post-Test Mean	Mean Gain
Rhythm Aptitude	31.775	33	1.225	32.15	33.925	1.775

Figure 2 illustrates the pre-test and post-test mean for the control and experimental groups on rhythm aptitude. Both groups achieved better on their rhythm aptitude scores after 12 weeks of instruction.

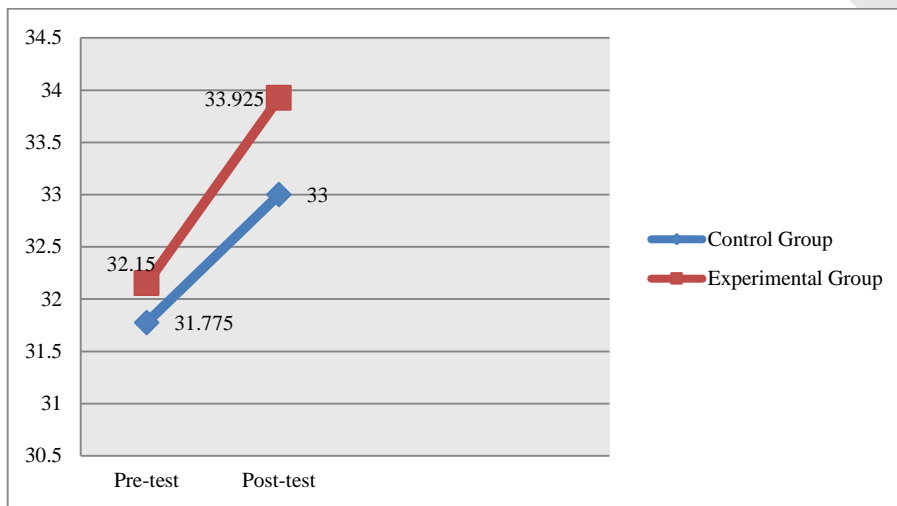


Figure 2. Pre-test and post-test mean on the IMMA rhythm aptitude by group

A paired samples t-test comparison shows no significant difference in mean gain scores ($t = -1.667$, $p > .05$) between the control and experimental groups of the primary two students on the IMMA rhythm aptitude (see Table 7).

Table 7: Paired Sample T-Test Comparisons of Pre-test and Post-test Mean Gain Scores on Tonal Aptitude

Source	Control Group Mean Gain	Experimental Group Mean Gain	SD	t	p
Rhythm Aptitude	1.225	1.775	2.087	-1.667	.104

No significant differences

3. Discussion

4.1. Tonal Aptitude

A t-test analysis indicated that no significant difference ($t = -1.408$, $p > .05$) existed between the control and experimental groups in IMMA tonal aptitude. The findings of this study support results found in previous research conducted by Atterbury and Silcox (1993), Guilbault (2004), Pelphrey (1998), and Stauffer (1985), who determined that harmonic accompaniment had no significant effect on children's music aptitude.

Figure 3 illustrates the comparison between percentage changes in IMMAT scores for the two groups. A greater percentage of children in the experimental group experienced improved tonal aptitude than in the control group. As a result, the bamboo xylophone may be considered an appropriate musical instrument for the development of musical aptitude.

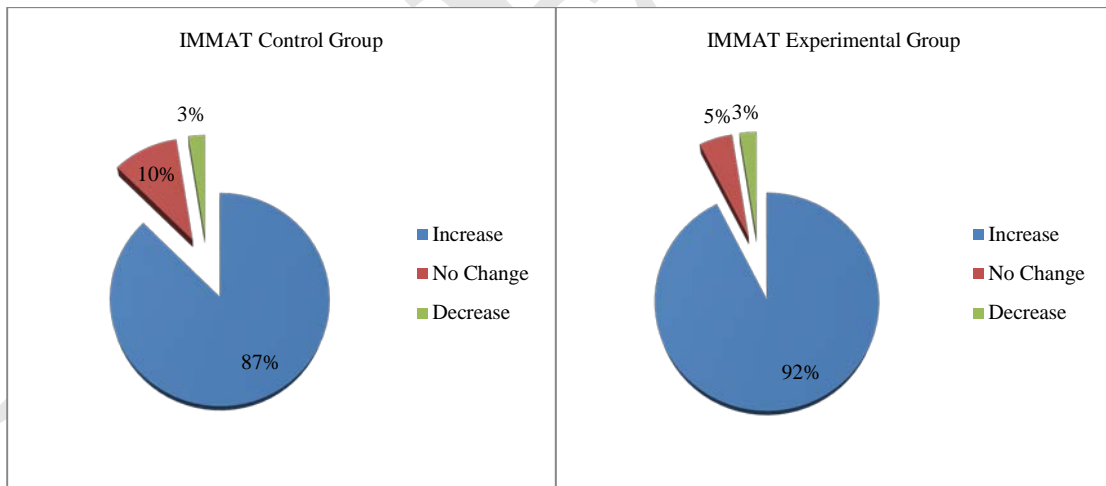


Figure 3. Comparisons of IMMAT changes between control and experimental groups

In the present study, the addition of a bamboo xylophone as harmonic accompaniment did not show a significant effect on children's music aptitude. The length of the instruction period—12 weeks with 60 minutes of

music instruction per week—may have influenced the result. It may be necessary to have more time to detect a statistically significant difference.

The range of population difference scores for each participant should be normally distributed. The sample size of the study should be 30 or above. Thus, it might be necessary to strengthen the study by increasing the sample size to detect any significant effect between the groups.

Children who received music instruction with an additional harmonic accompaniment scored higher than children who received music instruction without harmonic accompaniment. The researcher observed that one of the differences between groups was that the children in the experimental group enjoyed attending music class more.

Although there were no statistically significant differences between the experimental and control groups, it should be noted that both groups scored higher on the post-test than on the pre-test on the tonal aptitude tests. Recommendations for future study might include some longitudinal data to increase the possibility of finding a greater difference in music aptitude. Furthermore, it would be advantageous to investigate the effect of harmonic accompaniment on children's music aptitude with a wider span of age groups.

It would be beneficial for music educators to investigate the various types of accompaniment, the sequence of accompaniment, and teaching music instruction strategies, which might yield different results on music development. In addition, it would also be interesting to include students' interest level in the music class in future studies. Students' interest in playing musical instruments or in music may affect their music aptitude.

3.2. Rhythm Aptitude

The results showed no significant difference ($t = -1.712, p > .05$) between the control and experimental groups on IMMA rhythm aptitude. Figure 4 illustrates the percentage of students in the control and experimental groups whose IMMAR scores increased, decreased, or remained unchanged. Moreover, the percentage of students in the experimental group whose rhythm aptitude increased is higher than the percentage of students in the control group whose rhythm aptitude increased. It seems appropriate to conclude that the use of a bamboo xylophone can enhance children's developmental musical aptitude.

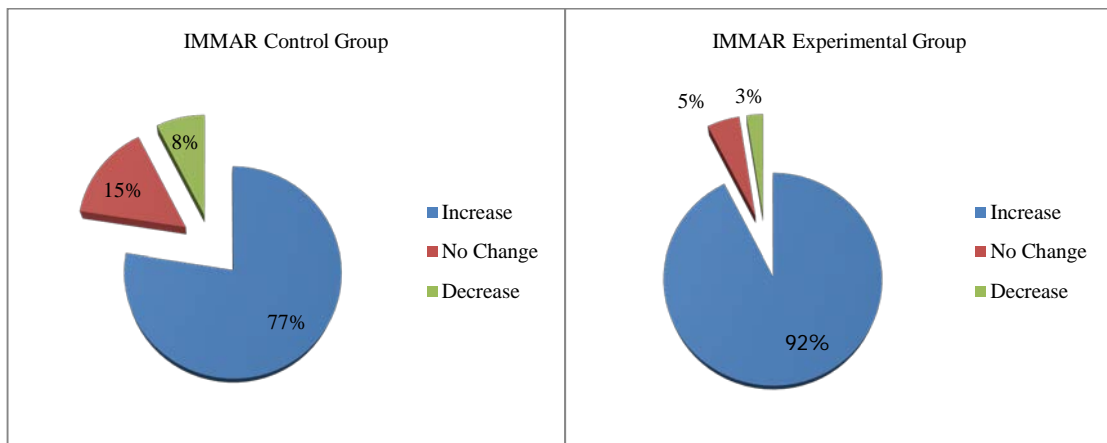


Figure 4. Comparisons of IMMAR changes between control and experimental groups

Some previous studies have supported the view that the level of rhythmic ability is affected by maturation (Groves, 1969; Serafine, 1975). Nevertheless, 92% of the experimental group increased their scores, and this is higher than the 77% of the control group whose scores also increased. Although these differences are not statistically significant, the data seem to support the view that the bamboo xylophone is an appropriate musical instrument for developing rhythm aptitude. It seems necessary to have a study with a larger sample size, and additional longitudinal investigations.

Both control group and experimental group received exactly the same music instruction, such as vocal warm up exercises, listening, singing, movement, playing percussion instruments, and tonal and rhythm pattern training. Also, the present study did not emphasize rhythm training. That the additional bamboo xylophone did not show a statistically difference might be due to the fact that the music instruction was the same and as a result, it did not obviously determine the effect of an additional harmonic accompaniment on primary two children's music aptitude.

Parents and teachers should be encouraged to understand the importance of early childhood formal and informal music instruction on the development of musical aptitude. Gordon (2007) states that, a child can positively or negatively influenced both through his or her innate potential and through the quality of his or her music environment. Some researchers also found that appropriate music instruction can increase children's development of musical aptitude (Flohr, 1981; Hudgens, 1987; Moore, 1984).

4. Conclusion and Recommendations

The bamboo xylophone can be an alternative musical teaching aid for music classroom teaching. It would be advantageous for music teachers to teach this local made and portable pitch percussion instrument. The children may benefit most from the use of a xylophone in music instruction for singing activities and ear training skills. Through the observation learning to play the xylophone also seems to enhance children enjoyment of music class.

Although there were no statistically significance differences between the experimental and control groups, it should be noted that both groups scored higher on the post-test than on the pre-test on the tonal and rhythm aptitude tests. Recommendations for future study might include some longitudinal data to increase the possibility

of finding a greater difference in music aptitude. Furthermore, it would be beneficial to examine the effect of harmonic accompaniment on children's music aptitude with a wider span of age groups.

It would be advantageous for music educators to investigate the various types of instruments accompaniment, the sequence of accompaniment and teaching music instruction strategies, which might yield different results on children music development. In addition, it would also be interesting to include students' interest level in the music class in future studies. Students' interest in playing musical instruments or in music may affect their music aptitude.

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4th International Conference on New Horizons in Education

The effect of training on vocational high school students in their professional development

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Abstract

Employees with sound educational backgrounds are crucial determinants of competition among the businesses. The importance of the employees in this field makes it necessary that students should be offered good education which should be supplemented with implementation from the field. In this implementation phase the internship takes an important place. In this study which deals with the expectations and post-internship experience of the vocational higher school students, the questionnaire technique was employed as the means of data collection. The findings of the study suggest that the opinions of the students who completed their internship and who have not completed their internship have been found out to be over 3 (positive) out of 5. This study draws a picture of the internship experience perceived by the statements and suggestions have been put forward.

Keywords: internship, vocational high school, Eskisehir -Turkey

INTRODUCTION

Employees form the social and economic focus point of enterprises. Employees take place at each stage of operating activities and perform efficient tasks. The existence of employees who received a decent education and have a high level of professional and social responsibility keeps the enterprises ahead of the game. For the enterprises to survive and achieve their goals in this competitive environment, it is necessary to use the resources efficiently and take decisions actively and quickly (Tengilimođlu and Acar, 2004). Therefore, employees with a good education in their field are at a determining position in providing both the competition at both national and global level. Especially with the growth of service sector, educated and qualified labor requirement has become more important (Kızılırmak, 2000). Additionally, the imperative of providing quality service considerably necessitates a higher level of professional and technical education for the labor to be employed in the related sector (Timur, 1994). This situation necessitates the business life and vocational education/training to be performed in parallel with each other (Sevim and Karamete, 2003). Vocational education is “*the education by which the individuals are coached for a profession, the ones who already have a profession are provided assistance for career development and accommodation to new professions, the individuals receive certificates and diplomas through education in accord with the interests, desires and needs in their daily lives, knowledge and skill are provided*” (Resmi Gazete, Official Gazette, 2002). Employees who are going to work at intermediate and mid-levels are educated through vocational education. Organizational

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structure of an enterprise consists mostly of the employees working at mid and lower levels. Hence, the enterprises should pay attention to qualified work force to compete and meet the expectations of customers. Especially, the purpose of vocational educational lies behind the activities aimed towards the use of theoretical knowledge, which the students receive by vocational education, in the business life (Bahadır and Oğuz, 2012).

Attitudes and approaches of enterprises towards interns are of great importance. Covering the expectations of interns make them love their jobs. In the previous studies carried out, it stands out that the interns whose expectations are not covered and who have experienced malpractices turn onto different jobs. Especially in the service sector in which individual labor is intense, high labor turnover rates affect the decisions of interns related to their careers negatively and causes an outward mobility in the sector (Türkay and Tüzemen, 2009). Among the reasons which increase the rate of labor turnover rate and force the interns to leave the sector are physical insufficiency in working conditions, lack of social rights, low wages, failing to satisfy the expectations of interns, individual factors and the imbalance of working hours etc. (Çimen, 2008; Duman et. al., 2006). In a research carried out by Sarıışık (2007), it is stated that the students of Vocational High Schools doing training in the field of tourism think that the job fits in their skills and do not plan to change the sector they are working. On the other hand, in a research carried out by Avcı (2011), it was indicated that the students receiving tourism education at undergraduate level want to work at the tourism sector after graduation. In the research carried out by Bahadır and Oğuz (2012) related to the training practices of the students of Vocational High School of Technical Sciences, it is stated that the students are content with the training practice and the advantage of finding a job is provided. Moreover, in a research conducted by Terim and Öztürk (2009) on students having the education of accounting, it was revealed that the students both find the education sufficient for training and are disposed to work in their fields after graduation. Actually, this situation presents an expected or ordinary result.

It is indicated that in Turkey, there are substantially a lot of skilled labor who completed their vocational education especially at the level of secondary and higher education but in general, the enterprises do not take advantage of this labor (Hacıoğlu et. al., 2008). Numerous variables might create this situation. Yet, what is important here related to this problem is to look for whether the labor demand that the sector needs and supplied labor expectations are met or not. First of all, training a work force qualified enough to meet the expectations of the business world should be the priority of educational institutions. Especially, the institutions providing education in vocational and technical field to train personnel for intermediate level should continuously revise and develop their curriculums. Moreover, Vocational High Schools should update the content of education provided within the criteria of expectations and training individuals who have flexible skills (Vurgun, 2009). On the other hand, considering the contribution of employee satisfaction to the organizational commitment, these enterprises should be sensitive to the interns (Kuşluyan and Kuşluyan, 2005). Furthermore, legal regulations which offer incentives to support the sector and individuals for vocational and technical education will enable the students to make more positive evaluations about career planning (Duman et. al., 2006).

CONCEPTUAL FRAMEWORK

In Turkey, training within the scope of university education give the students a chance to observe business life by providing experience for their jobs/professions and an opportunity for them to compare their theoretical knowledge with

practice. In the sense of the students gaining vocational experience before professional life and being ready for the problems of the professional life with these experiences, training period is one of the essential levels of education (Karacan and Karacan, 2004). Vocational High Schools are the schools providing two years higher education with the related areas after high school and their equivalents. The purpose of Vocational High Schools is to train intermediate level employees that the relevant sectors need. At these schools, students receive theoretical education for four semesters. In addition to that, each university organize a training directive within the framework of Training Regulations issued by the Council of Higher Education being in accordance with their programs and implement this directive. The Council of Higher Education arranges the activities targeted at the skill training of students with a regulation within the frame of the legislation. The purpose of this Regulations Concerning the Basis and Procedures Related to the Education, Practice and Training of Vocational High School Students within the Vocational and Technical Education Area is *“to reinforce the theoretical knowledge and experiences, improve the skills and experiences acquired through laboratory and workshop practices and to enable these students who are being educated at the vocational high schools within the Vocational and Technical Education Area to learn the responsibilities, relations, organizations, production process and new technologies of the work place to be worked”*. Furthermore, training period of these students is arranged in the 17th Article of the same Regulation as being not less than 30 workdays (240 hours) and more than 60 workdays (480 hours) according to the qualification of program (www.yok.gov.tr). Starting from this point, Vocational High Schools should plan and coordinate their education and training programs in line with the purpose stated in the Regulations. The intensity of competition forces the business world to create differences. In this respect, qualified labor force creates the most important differences for the enterprises. Since this qualified labor force will tip the balance in the creation of other differences, qualified labor force being one of the main factors of development in any field is the key to competition and quality (Sems and Clements, 1996; Ünlüönen, 2000). Vocational High Schools training intermediate personnel have to conduct their educational and training programs in a way to integrate theory and practice at each stage. In other words, for the education provided to students to be successful, theoretical education should be supported by hands-on training (Fırat, 1997; Rimmington, 1999; Velde and Cooper, 2000; Morrison and Q’Mahony, 2003; Çetin, 2005; Pelit and Güçer, 2006; Alexander, 2007). Evaluating the studies (Çetin, 1995; Altınay, 1996; Cooper et. al., 1996; Kozak, 1999; Kuşlivan and Kuşlivan, 2000; Tan and Morgan, 2002; Riley et. al., 2002.; Yıldırım, 2002; Ilgaz and Çakar, 2002; King et. al., 2003; Karacan and Karacan, 2004; Gören, 2005; Benli and Karaosmanoğlu, 2005; Çetin, 2005; Duman et. al., 2006; Taşkın, 2006; Pelit and Güçer, 2006; Sarıışık, 2007; Dağdeviren, 2007; Terim and Öztürk, 2009; Türkay and Tüzemen, 2009; Wang et. al., 2009; Bahadır and Oğuz, 2012) carried out for the training practices of schools providing education oriented at a profession, it is possible to draw inferences that the skill training is not at a desired level, since the curriculum of these schools are predominantly based on theoretical education. This situation reveals the explicit face of the problem. Therefore, determining the real issues that cause the problem would eliminate the problems. It is known that in Turkey, public institutions carry out many activities to enhance the quality of education and improve vocational and technical education as in other areas/fields. To understand this subject better, first of all, it would be useful to investigate where the Vocational High Schools in Turkey stand in numbers. According to information provided by the Council of Higher Education on the date of 10 May 2013, there are 976 Vocational High Schools and with 13508 programs, education and training are provided. In 2011-2012 academic year, the number of students registered to these programs being 420922, total of 109552 graduated from these programs at the end of 2012. The numbers given above indicate the importance that our country places on vocational and

technical education. What should be taken into consideration here is that in these schools, qualitative quality should also be improved as well as the quantitative quality. With the sense of the requirement that the country resources should be used wisely, at the stage of establishment of these schools, feasibility studies should be conducted and region(s) in need of schools and programs should be determined. For example, whether there is a chance for the students to do training during the program and to find a job after graduation within the region where these schools will be established or the immediate vicinity or not is a question to be answered beforehand. For this reason, the development of the cooperation between the related sector(s) and educational institutions will increase the local, regional and national contribution to the satisfaction of need(s). In addition to that, physical structures of these schools should not be designed just for theoretical education but also should include classrooms and functional workshops that will serve the needs. Another important problem confronted related to this issue is that there are differences among the training directions and training practice processes of Vocational High Schools. It is seen that there are major practical differences among the schools and programs in terms of both training period and training practice. In the studies (Kuşlivan, 2000; Koyuncu 2000; Demirer, 2000; Yağcı, 2001; Güçer, 2004; Kozak, 2005; Çelik 2006; Çevik, 2007; Temircan, 2009; Başer, 2010; Türkseven, 2012) carried out for this issue, the representatives of sectors stated that the students especially at the level of higher education do not have enough practical knowledge and this causes adaptation problems within the enterprises. In accordance with either the results of studies conducted related to this issue or the regulations arising from the implementations of the union countries during the process of adaptation to the European Union, it is still possible to express the existence of these problems even though the related schools show a great effort for making up their deficiencies (Emir et. al., 2010). The way to eliminate these problems is providing students the skill training for practice at schools in the field of practice. These kinds of practices should guide the students later for the training period they will attend (Velde and Cooper, 2000: 83; Pelit and Güçer, 2006). This research attempts to measure the perceptions related to training practice of the students who performed and did not perform training. To the term of training, writers have made different definitions, the essence being the same. According to Çetin (2005), training is *“the use and practice of academic knowledge of individuals who have theoretical professional knowledge in real life, in other words, the experience of turning the acquired information into behavior by practicing and experiencing.”* Training is defined as *“the process of putting the theoretical knowledge received at Vocational High Schools into practice under the custody of a master trainer in the appropriate enterprises”* by Bila (2006). And Turkish Language Association (2013) defines training as *“The period spent by an individual by working at one or more than one department of an enterprise to improve his vocational knowledge”* or *“Practical learning period experienced by an individual who will acquire a profession”*. As it can be understood from the definitions, training enables students to see the working conditions, to learn the necessary competencies for their professional developments, to make a professional circle, to socialize and to meet with realities (Ilgaz and Çakar, 2002: 385; Çalık, 2006). Accordingly, the first acquaintance and perceptions of students with the business world start with the training period (Türkay and Tüzemen, 2009; Başer, 2010). Training activities of students carried out within the enterprises during the academic period offers the students an opportunity to practice and observe the real applications at the enterprises by helping the update of information out of date being one of the significant problems of vocational education (Sevim and Karamete, 2003; Çetin, 2005; TOBB, 2007). Thus, while the professional ethics and work discipline senses of students are improving, they will exert effort to develop themselves with the pleasure taken in the contribution that they are providing to the production during their training activities (Buluç, 1992). A conscious and systematic training will enable the students to make a good preparation for

the future. Therefore, enterprises bear a great responsibility (Cho, 2006). These enterprises should regard the interns as their backyards in other words, each contribution made for the interns are making investment on the future of the enterprise. In this respect, the enterprises can train personnel suitable to their identities by employing interns and thus they would not have difficulty in finding personnel. Hence, the training practice contributes both to the enterprises and interns. During the training period, difficulties and technical points of the job, faults and deficiencies should in particular be informed to the interns. Training process should be taken as a part of educational process. In this regard, training might be evaluated as an educational system that provides benefits to the students such as experiencing the working conditions related to the tasks to be carried out by them in the future, learning and consolidating the work processes, being responsible and adapting to the work. Hence, the enterprises should conduct the training process of interns within a plan under the coordination of a consultant (Çetinkaya, 2004; Çetin, 2005; Yer, 2006).

Broadly speaking, training makes up an important part of the professional and technical education of students. The studies carried out related to this subject up to date have brought forward many proposals to the parties (relevant sector and school) about the training. In line with the proposals, those parties have adapted the changes regarding their own shares. Today, competition is a subject that not only applies to the enterprises but also other sectors such as education, health, etc. From this point of view, students who receive a qualified education in a related field will be more successful in their business life. Accordingly, it is possible to indicate that knowing the state of expectation and satisfaction of students from the training will make a contribution to both the literature and the parties (related sector and school) related to the subject and the ones who will develop a plan and project.

2. PURPOSE OF THE RESEARCH

The purpose of this research is to emphasize the effect of training on the professional development of Vocational High School Students. Within this framework, by determining the perception of training by the students who did not do training and completed the training period, the differences are specified. By means of specifying the mentioned differences, the effect of training on the professional development of students are tried to be determined.

3. METHOD OF THE RESEARCH

Sample group of this research consists of 275 (63,8%) students who have not performed training yet and 156 (36,2%) students who have completed their training out of a total number of 431 students from Anadolu University Eskisehir Vocational High School and Porsuk Vocational High School. For the research, questionnaire technique is used as the data collection method. The questionnaire was conducted to students within the scope of research through face to face interview method. Of the questionnaire comprising of two sections, there are some questions about demographical features (sex, current grade, the Vocational High School they receive education and the methods by which they have found the enterprise they do training) of participants within the first section. The second section of the questionnaire consists of 17 statements designed as 5 point Likert Scale (1=strongly disagree, 2=disagree, 3=neutral, 4=agree and 5=strongly agree) to determine the expectations of students to do training and the evaluations of students regarding the training. The second section of the questionnaire used in the research are created upon the revision of previous studies (Kozak, 1999; Kuşluvan and Kuşluvan, 2000; Kozak and Kızırmak, 2001; Jenkins, 2001; Sevim and Karamete, 2003; Karacan and Karacan, 2004; Ünlüönen, 2004; Kozak, 2005;

Güçer, 2004; Aksu and Köksal, 2005; Benli and Karaosmanoğlu, 2005; Pelit and Güçer, 2006; Saruşık, 2007; İçli, 2007; Emir et. al., 2008; Richardson, 2009; Wang vd., 2009; Terim and Öztürk, 2009; Ünlüönen et.al., 2010; Bahadır and Oğuz, 2012) related to the subject. Appropriateness of this section of the questionnaire in terms of both the content and comprehensibility is controlled by taking expert opinions and making face to face interviews with 30 individuals who have the same features with the target audience (students of Eskisehir Vocational High School) with a preliminary application. Thanks to the interviews made with the aforementioned group and the feedbacks, comprehensibility of all the statements in the questionnaire is checked.

The data collected in scope of the research analyzed by using statistical data analysis techniques by SPSS (Statistical Package for Social Sciences) program in accordance with the purpose of research. In the analysis of collected data, percentage and frequency distribution, arithmetic mean, standard deviation and independent samples t test are used. Regarding the reliability analysis in relation to the second section of the questionnaire, Cronbach's Alpha is computed as $\alpha=0,908$ for the students who did not perform training and $\alpha=0,911$ for the students who did not. The results seem to be sufficient in terms of the reliability of the scale used in the research (Alpar, 2011).

4. RESULTS

Frequency and percentage distribution with reference to some demographical features of students consisting of the sample group of the research are given in Table 1. When the individual features of participants are evaluated in Table 1, it can be seen that of the participants; 63,8% have not performed training, 36,2% have completed training period, 58,2% male, 41,8% female, 75,2% are among 18-20 age group and 42,0% first grade, 58,0% are second grade students. The results of t test concerning the comparison of training practice status, grade and gender of the students with participants' opinion is presented in Table 2.

Table 1: Demographical Characteristics of the Participants

Variants	Groups	f	%
Status of training	Have not performed	275	63,8
	Have performed	156	36,2
Sex	Male	251	58,2
	Female	180	41,8
Age	18-20	324	75,2
	21-23	95	22,0
	24 and over	12	2,8
Grade	1 st Grade	181	42,0
	2 nd Grade	250	58,0

Table 2: The Comparison of the Participants' Opinion According to Training Status and Gender.

Variables	Groups	\bar{X}	s.d.	t	p
Training Status	Those who have not	4,09	0,55	2,731	0,007*
	Those who have	3,93	0,67		
Grade	1 st grade	4,15	0,48	3,528	0,000*
	2 nd grade	3,94	0,67		
Gender	Male	4,02	0,61	0,373	0,710
	Female	4,04	0,59		

* $p < 0,05$

According to findings in Table 2, the general (total) opinions of the students who have not performed training ($\bar{X} = 4,09$) is higher than ($\bar{X} = 3,93$) those who performed their training. It was found that the opinions change meaningfully according to the grades of participants ($p < 0,05$). When we evaluate the mean values, we see that the mean value of the first grade students ($\bar{X} = 4,15$) is higher (more positive) than that of the second grade students ($\bar{X} = 3,94$). This is because second grade students are mostly consisted of the ones who performed their training. On the other hand, it was observed that there is no meaningful difference in general training evaluations according to genders ($p > 0,05$). It was concluded in a research carried out by Bila (2006) that the level of utility of summer training does not meaningfully change according to gender.

Opinions of Vocational High School students who have performed and have not performed training regarding the practice of training and findings related to the comparison of the mentioned opinions are provided in Table 3. According to the findings in Table 3, it is concluded that the opinions of the students who have not practiced their training yet and who completed their training about the training practice are generally positive above 3 points, which is medium level. In other words, the mean values in Table 3 revealed that training expectations of those who do not practice training and perceptions for training of those who did training are positive. On one hand, there is no statistical meaningful difference between the opinions of the students who have not practiced their training yet and who completed their training about the 10th, 11th, 14th, 15th, 16th and 17th items ($p > 0,05$). On the other hand, opinions of students meaningfully become different according to 2nd, 3rd, 4th, 5th, 8th, 9th, 12th and 13th items ($p < 0,05$). Evaluations about these differences have been presented below.

- The expectations, of students who did not perform their training, in the subject "Application of the theoretical knowledge learned at school during training (item 2)" ($\bar{X} = 4,07$) is higher ($\bar{X} = 3,75$) than the perceptions of the students who did their training (more positive).

•The expectations, of students who did not perform their training, in the subject “The parallelism between theoretical education and practices in enterprises (item 3)” ($\bar{X}=3,85$) is higher ($\bar{X}=3,56$) than the perceptions of the students who did their training.

•The expectations, of students who did not perform their training, in the subject "Seeing current issues and new developments not seen during theoretical training in the practice (item 4)" ($\bar{X}=4,24$) is higher ($\bar{X}=3,88$) than the perceptions of the students who did their training.

•The expectations of students, who did not perform their training, in the subject “The interest in the field of education after training (item 5)” ($\bar{X}=4,05$) is higher ($\bar{X}=3,79$) than the perceptions of the students who did their training.

• The expectations of students, who did not perform their training, in the subject “Contribution to foreign language development (item 8)” ($\bar{X}=3,35$) is higher ($\bar{X}=3,14$) than the perceptions of the students who did their training.

• The expectations of students, who did not perform their training, in the subject “Contribution to success of business life after graduation (item 9)” ($\bar{X}=4,17$) is higher ($\bar{X}=3,96$) than the perceptions of the students who did their training.

• The expectations of students, who did not perform their training, in the subject “Contribution to the will to work after school is finished (item 12)” ($\bar{X}=4,16$) is higher ($\bar{X}=3,98$) than the perceptions of the students who did their training.

• The expectations of students, who did not perform their training, in the subject “The idea of receiving in-service training in places where training is performed (item 13)” ($\bar{X}=3,96$) is higher ($\bar{X}=3,63$) than the perceptions of the students who did their training.

Table 3: The results of t test regarding the comparison between the ideas of students who will do training and who did their training.

Item No	Expressions	Training Status	\bar{X}	Standard Deviation	t	p (sig)
1	I believe that I will do training in the field which is appropriate for my education programme.	**	4,36	0,83	1,469	0,143
	I did training in the field which is appropriate for my education programme.	***	4,22	1,07		
2	I will have the opportunity to practice the theoretical knowledge learned at school during my training.	**	4,07	0,83	3,281	0,001*
	I had the opportunity to practice the theoretical knowledge learned at school during my training.	***	3,75	1,18		
3	Theoretical education will be in line with the practice in enterprises.	**	3,85	0,85	3,056	0,002*
	Theoretical education at school was in line with the practice in enterprises.	***	3,56	1,07		

4	I will have the opportunity to see the current topics which I did not see in my theoretical education and new developments in application level.	**	4,24	0,75	4,122	0,000*
	I had the opportunity to see the current topics which I did not see in my theoretical education and new developments in application level.	***	3,88	0,99		
5	After the training practice, my interest in the field will be increased.	**	4,05	1,01	2,457	0,014*
	After the training practice, my interest in the field was increased.	***	3,79	1,09		
6	The training will be useful in terms of familiarising me with business life.	**	4,35	0,78	-0,734	0,463
	The training was useful in terms of familiarising me with business life.	***	4,40	0,77		
7	The training will enhance my self-confidence in the profession.	**	4,33	0,81	1,604	0,109
	The training enhanced my self-confidence in the profession.	***	4,19	1,01		
8	It will make contribution to my foreign language development.	**	3,35	1,23	3,221	0,011*
	It made contribution to my foreign language development.	***	3,14	1,36		
9	The training will contribute to my success in business life after graduation.	**	4,17	0,83	2,387	0,017*
	The training will contribute to my success in business life after graduation.	***	3,96	1,02		
10	There will be positive changes in my perspective of subjects after I go back to school at the end of the training.	**	3,80	0,97	0,327	0,743
	Positive changes occurred in my perspective of subjects after I went back to school at the end of the training.	***	3,76	1,05		
11	I will become experienced generally in human relations, specifically in relations between customer and workers.	**	4,26	0,75	0,280	0,779
	I became experienced generally in human relations, specifically in relations between customer and workers.	***	4,24	0,83		
12	It will make positive contribution to my willingness to work	**	4,16	0,82	1,929	0,044*
	It made positive contribution to my willingness to work	***	3,98	1,10		
13	I think I will receive in-service training in the operations where I did my training.	**	3,96	0,87	3,271	0,001*
	I received in-service training in the operations where I did my training.	***	3,63	1,18		
14	I will have the opportunity to enhance my knowledge about the sector thanks to training practice.	**	4,29	0,77	0,579	0,563
	I had the opportunity to enhance my knowledge about the sector thanks to training practice.	***	4,24	0,94		
15	Duration of the training will be sufficient enough for me to improve my professional skills.	**	4,02	0,93	-0,516	0,606
	Duration of the training was sufficient enough for me to improve my professional skills.	***	4,06	1,00		
16	I will gain experience about work division and coordinated work.	**	4,23	0,79	0,690	0,491
	I gained experience about work division and coordinated work.	***	4,17	0,87		
17	I will have the opportunity to meet people from different cultures.	**	4,13	1,00	0,855	0,393
	I had the opportunity to meet people from different cultures.	***	4,03	1,19		

* $p < 0,05$, **The ones who have not performed training, *** The ones who performed training

CONCLUSION AND SUGGESTIONS

Education is a process of educating people for specific purposes in general terms and the sum of processes in which an individual learn behaviors in the society he/she lives (Erden and Fidan, 1998; Varış, 1996). In other words, education is a socialization process in which an individual learns a specific life style Education can be defined as creating the desired behavior change in the individual through the arrangement of environment. In order to develop this kind of behavior change in individual, environment of education should be consistently organized and controlled; in other words it should be evaluated and improved (Sönmez, 1987). Primary objective of the education should be to convey cultural heritage to generations, to create a facilitator effect for the individuals to perform social roles by forming their behaviors and raising well-educated individuals (Çevik, 2007; Türkseven, 2012). In order for educational institutions to achieve this goal, all parties should participate in the process and there should be a continuous development and customer-oriented point of view (Çevik, 2007). Total of 431 students who have not undergone training yet and who completed training participated in this study, the aim of which is to determine the effect of training on the development of vocational school students. It can be concluded that the evaluations of students on training is generally positive. It can also be stated that the perceptions of the students who have completed their training about the subjects application of the theoretical knowledge learned at school during training, foreign language development, contribution to success of business life after graduation, increased desire to work after education is completed and receiving in-service training during training is higher and more positive. This assessment applies to the overall scale of training. When we analyze the studies related to research, it is possible to achieve different conclusions in terms of both training programs and sector. For example, in a study carried out by Başer (2010), it is highlighted that the current training program is not efficient and students see it as a formality; and there is lack of coordination among the units regarding vocational training. In another research, it was reported that students think that business world see them as cheap labor, which leads them not to place enough emphasis on implementation of skills training (Yılmaz, 2011). In a research bu Bila (2006), the level of practising on the master trainers by trainees in private sector is much higher than that of the ones in governmental institution (Bila, 2006). Furthermore, it is stated in a research by Yılmaz (2011) that students prefer private sector to perform their training rather than public one. The main reason is that students assume that they will have the chance to be accepted as an employee after graduation. Temircan (2009) suggests in his study that students are in the opinion that the foreign language education is insufficient at schools. On the other hand, it is pointed out in a research by Çevik (2007) including the expectations of vocational school students that the students have great expectations as to acquire "knowledge and skills of foreign language ". In a research conducted by Emir, et. al., (2010) The trainees remarked that the training is useful in that it creates the opportunity to gain experience about the duration of training, work division of training, coordinated working and to introduce people from different cultures and with different life styles. Within the frame of the results obtained in the research, it can be recommended that theoretical knowledge should be supported by practical knowledge and especially more importance should be given to foreign language education. Besides, the cooperation between the related sector and educational institution will be useful while establishing curriculum. What is more, trainees should not be seen as cheap labor. Trainees are the future of the operations and that is why they should be trained in a quality way. For this reason, legal regulations which will effect parties in a positive way should be conducted by public in order to make training program more attractive. Employment of the trainees in work places should be a priority. Therefore, it will be an element of oppression for

the authorities to carry out the training program appropriate for the philosophy of it apart from the routine implementation. By means of training practice, students compare theoretical knowledge with practical knowledge at work places. In this respect, the coordination between work place, educational institutions and students will be effective in the success of training.

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The Effect of Environmental Education on the Pre-Service Teachers' Affective Tendency towards the Environment and Cognitive Structure

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Abstract

The aim of this study is to examine the effect of the 'Environmental Protection' course on the pre-service chemistry teachers' affective tendency towards the environment and cognitive structure. Moreover, the pre-service teachers' opinions on the content, applications and contributions of the Environmental Protection course have been also evaluated. One group pretest-posttest design has been used in the study. 12 pre-service teachers, who study in Hacettepe University, Faculty of Education, and Department of Chemistry Education and have registered for the Environmental Protection course during fall semester 2012-2013, have been included in the study. Trends in Environmentally Oriented Affective Scale, Word Association Test and open-ended questions intended for learning the pre-service teachers' opinions have been used in the study as a data collection tool. Consequently, it is found that the Environmental Protection course led to a positive increase in the pre-service teachers' sensorial tendency towards the environment and that it is influential in their setting up associations between concepts through the knowledge of environmental concepts. Regarding the views held by the pre-service teachers, it is found in their personal statements that the course was effective in their learning the new concepts about the environment, in making them more sensitive to the environment, and in their gaining awareness of the environment.

Keywords: environmental education, word association test, cognitive structure, pre-service chemistry teachers

1. Introduction

Against the environmental problems increasing every day, it becomes more important to raise sensitive and concious individuals. This result establishes the need for an effective environmental education. Environmental education is a life-long lasting, interdisciplinary approach in order to develop a world population that has individual and sociological duties and responsibilities, knowledge, skills, attitudes and incentives to contribute to solve the current environmental problems and preventing the formation of the new ones (Moseley,2000). According to Vaughan, Gack, Solorazano and Ray (2003) environmental education is a continual learning procedure which enables people to be aware of their environment and aims new generations to gain the necessary knowledge, skills, attitudes and experiences to solve the environmental problems. With an environmental education, developing individuals' environmental consciousness, enabling them to have positive attitudes and behaviours, increasing their sensitivities towards environments environmental problems and providing positive contributions to the sustainability of a more livable environment is aimed (Roth, 1992; Hsu, 2004; Reid, Teamey & Dillon,2004; Xingcune, 2004; Venkataraman, 2008; Davis, 1998). Our merits, attitudes, awareness and intentions towards the environment generate our affective tendencies. If an individual think about an environmental problem at an interpersonal level and this problem requires an action, all factors that lead to take

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action for the individual show his affective tendency (Trudi Volk & Mcbeth 2001; as cited: Aksoy & Karatekin, 2011).

In studies concerning environmental education, emphasis made on sustainability / lifelong concepts catches the attention. For the sustainability of a livable environment, environmental education should be continuous and sustainable. Environmental education starts in the family which individuals live with and continues with the formal and informal educations all through their lives. Plevyak Noe, Henderson, Roth and Wilke (2001) expressed that the most important factor to determine the success of environmental education is teacher, and they stated that, unless teachers have the knowledge ability and responsibility to prepare their lessons towards environment, it would be impossible to raise environmentally literate students. Considering the development of susceptible behaviours towards environment, significant tasks are under the responsibility of teachers who are the most important items of the formal education, (Groves & Pugh, 1999; Khalid, 2001; Karatekin & Aksoy, 2012; Artun, Uzunöz & Akbaş, 2013). In this context, the pre-service teacher's possession of knowledge, conscious and positive affective tendencies is important in terms of raising environmentally-conscious generations.

1.1. The aim of the study

In this study, it is aimed to examine the effect of the 'Environmental Protection' course on the pre-service chemistry teachers' affective tendency towards the environment and cognitive structure. The pre-service teachers' opinions on the content, applications and contributions of the Environmental Protection course are also evaluated.

1.2. The Sub- Problems

The sub-problems of the study are as stated below:

- 1) What is the effect of environmental education on the pre-service chemistry teachers' affective tendency toward the environment?
- 2) What is the effect of environmental education on the pre-service chemistry teachers' cognitive structure?
- 3) What are the opinions of the pre-service chemistry teachers' on the content, applications and contributions of the Environmental Protection course?

2. Method

One-group pre-test, post-test design was used in the study.

2.1. Sample

12 pre-service teachers, who study in Hacettepe University, Faculty of Education, and Department of Chemistry Education and have registered for the Environmental Protection course during fall semester 2012-2013, are included in the study.

2.2. Data Collection Tools

The measuring tools used in the study are: Trends in Environmentally Oriented Affective Scale, Word Association Test, Open- Ended Questions. The following sections give detailed information about these instruments.

2.2.1. Trends in Environmentally Oriented Affective Scale (TEOAS): In order to determine the pre-service chemistry teachers' sensorial tendency towards the environment, Trends in Environmentally Oriented Affective

Scale originally developed by Wisconsin Center for Environmental Education (1994, 1997) and adapted into Turkish by Karatekin (2011) was used. The Scale is composed of 27 items with 5 point Likert scale. The Cronbach alpha reliability coefficient was calculated as .78 (by Karatekin, 2011).

2.2.2. *Word Association Test (WAT)*: In order to determine the cognitive structure of participants WAT was conducted. To construct the Word Association Test, six important stimulus words which are relevant to the course content were chosen in this study. These words were as follows: environment, sustainability, ecology, environmental issues, pollution and waste. WAT was prepared as stated below (one word on each page):

Environment
 Environment
 Environment

Bahar and Özatlı (2003) stated that the reason for writing the stimulus words one under the other is to prevent the risk of continuous answering. If one does not look at the stimulus word at every turn, the words which the concept reminded him will come back to his memory. So, this situation will affect the aim of the test (Bahar & Özatlı,2003).

2.2.3. *Open- Ended Questions:*

The pre-service teachers were asked open-ended questions to reveal their opinions on the content, applications and contributions of the Environmental Protection course. These questions were as follows:

1. Do you evaluate your knowledge about the environment before and after the Environmental Protection course and your attainment within the scope of the course?
2. Are the activities (methods and techniques) which were applied within the scope of the course useful for you? Why?

2.3. *Application stages of the research:*

The research was conducted on the Environmental Protection course during fall semester 2012-2013.

•In the first week, the pre-service chemistry teachers were offered general knowledge on the research content, and the purpose of the study was explained to them. Before the application, the word association test was explained and several examples about different issues were given. Pretests (WAT and TEOS) were applied. Considering the studies in the literature (Kempa & Nicholls,1983; Bahar, Johnstone & Sutcliffe,1999; Bahar & Özatlı, 2003), thirty seconds were given to the pre-service teachers for each word in the word association test. The researcher controlled the time and administrated WAT and TEOAS. During the education semester, within the scope of the Environmental Protection course, the pre-service teachers learned about the emergence of the environmental problems, evaluation of the environmental effects, definitions related to the environmental terms, environmental problems, environmental organizations and watched videos related to these subjects. Moreover, they prepared presentations on the environmental issues and presented them during the course. At the end of the semester WAT and TEOAS were given as the post test. Open-ended questions were asked for learning the opinions of the pre-service teachers about the course.

2.4. *Data Analysis*

In order to determine the effect of the environmental education on the pre-service chemistry teachers' affective tendency towards the environment, the analysis of Wilcoxon Signed- Ranks Test was made. Pre and post "Word association test" was conducted to determine the cognitive structures of the pre-service teachers and the results were examined thoroughly. A frequency table was prepared to show the number of the repetition of the words which were written related to each stimulus words and also concept maps were created. "Cut-off point" technique presented by Bahar, Johnstone and Sutcliffe (1999) was used in the construction of the concept maps. According

to this technique, the 3-5 points below the highest response word for any stimulus word in the WAT is used as a cut-off point. The responses whose frequency is over the cut-off point are written on the top of the map. Then the cut-off point is gradually lowered and this process continues until the appearance of all stimulus words on the map (Bahar & Özathı, 2003; Ercan, Taşdere & Ercan, 2010; Demircioğlu, Vural & Demircioğlu, 2012). Since there is limited number of students, the cut-off point was determined two points below considering the concept that was widely accepted (Demircioğlu, Vural & Demircioğlu, 2012). For example, in the pre-test, the concept “environment” was associated with the concept “pollution” eleven times (11 students). Under normal circumstances, the cut-off point is determined as 8-11 points in the first stage and as 7-4 points in the second stage. However, due to the number of the students, the cut-off points were determined in short intervals (for example, the cut-off points in the first stage is between 10-11 and in the second stage between 8-9). The words with 1 frequency were not included because they could cause a complicated and disintegrated concept map. The pre-service chemistry teachers’ opinions on the content, applications and contributions of the Environmental Protection course were evaluated according to their responses to open-ended questions.

3. FINDINGS

The findings were examined in line with the research questions of the study.

Regarding the first sub-problem of the study, the results of the Wilcoxon Signed-Ranks Test were shown in Table 1 to analyze the points of the pre-service teachers’ affective tendencies towards the environment before and after the Environmental Protection course.

Table 1. The results of the Wilcoxon Signed-Ranks Test for the points of the affective tendencies towards the environment before and after the Environmental Protection course

Post test- Pre test	n	Mean Rank	Sum of Ranks	Z	p
Negative Ranks	2	4,25	8,50	2,39	0,017
Positive Ranks	10	6,95	69,50		
Ties	0				

*Based on negative ranks

The results indicate that there is a significant difference between the points of the pre-service teachers’ affective tendencies towards the environment before and after the Environmental Protection course ($z=2.39$, $p<0.05$). Considering the mean rank and sum of ranks of the variable points, it is understood that this difference is on the side of positive ranks, that is post-test point. According to these results, it can be stated that the Environmental Protection course affected the pre-service teachers’ affective tendencies towards the environment positively.

In regard to second research question, the total number of different response words to each stimulus words in pre- and post-WAT is given in Table 2. The concept maps drawn according to the stimulus words after the word association test prepared for the pre-service teachers before and after the Environmental Protection course are given in Table 3.

Table 2. Total number of different response words to each stimulus words in pre- and post- WAT

Stimulus words	Total number of response words	
	Pre- WAT	Post-WAT
Environment	78	85
Sustainability	32	53
Ecology	43	55
Environmental issues	68	88
Pollution	40	59
Waste	35	38
Total	296	378

The total number of valid response words is 296 for pre-WAT and 378 for post-WAT. It can be expressed that the Environmental Protection course influenced the establishment of the connections with the stimulus words in the cognitive structures of the pre-service teachers regarding the stimulus words and also the increase in these connections. The pre and post concept maps drawn according to the results of the word association test applied to the pre-service teachers before and after the Environmental Protection course are given in Table 3.

Comparison between the pre and post concept maps drawn according to the results of the word association test applied to the pre-service chemistry teachers before and after the Environmental Protection course:

The pre-service teachers' cognitive structures before and after instruction:

- 1) **Cut-off point 10-11:** At this cut-off point, in the pre-test, only the stimulus word "sustainability" and two more concepts related to this stimulus word (wind and solar energy) came forward. It is seen that many stimulus words were not included at this cut-off point. However, in the post test, it is seen that the stimulus words "sustainability, pollution and environment" were given in relation to one another and also the concept "protection" was given in accordance with the concept "environment".
- 2) **Cut-off point 8-9:** At this cut-off point, in the pre-test, the relation between the stimulus words "environmental issues" and "pollution" came forward. Moreover, the stimulus word "ecology" and in accordance with this concept the concept "balance" were included. In the post test, the relation between the stimulus words "environment" and "pollution" and also the concept "air pollution" related to the concept "pollution" were stated. Furthermore, the stimulus word "sustainability" and the concept "water" in accordance with this concept were also expressed.
- 3) **Cut-off point 6-7:** At this cut-off point, in the pre-test, the pre-service teachers mentioned the stimulus words "environment, waste, sustainability, pollution and ecology" and also the relation between the stimulus words "environment" and "waste". Moreover, several concepts related to each stimulus word came forward. In the post test, all stimulus words were included. However, except for the relation between the words "environment" and "ecology", all stimulus words were unrelated and disconnected. Response words were also written regarding all stimulus words.
- 4) **Cut-off point 4-5:** At this cut-off point, in the pre-test, all stimulus words were mentioned. However, only the relation between the concepts "pollution, environment and sustainability" was given and

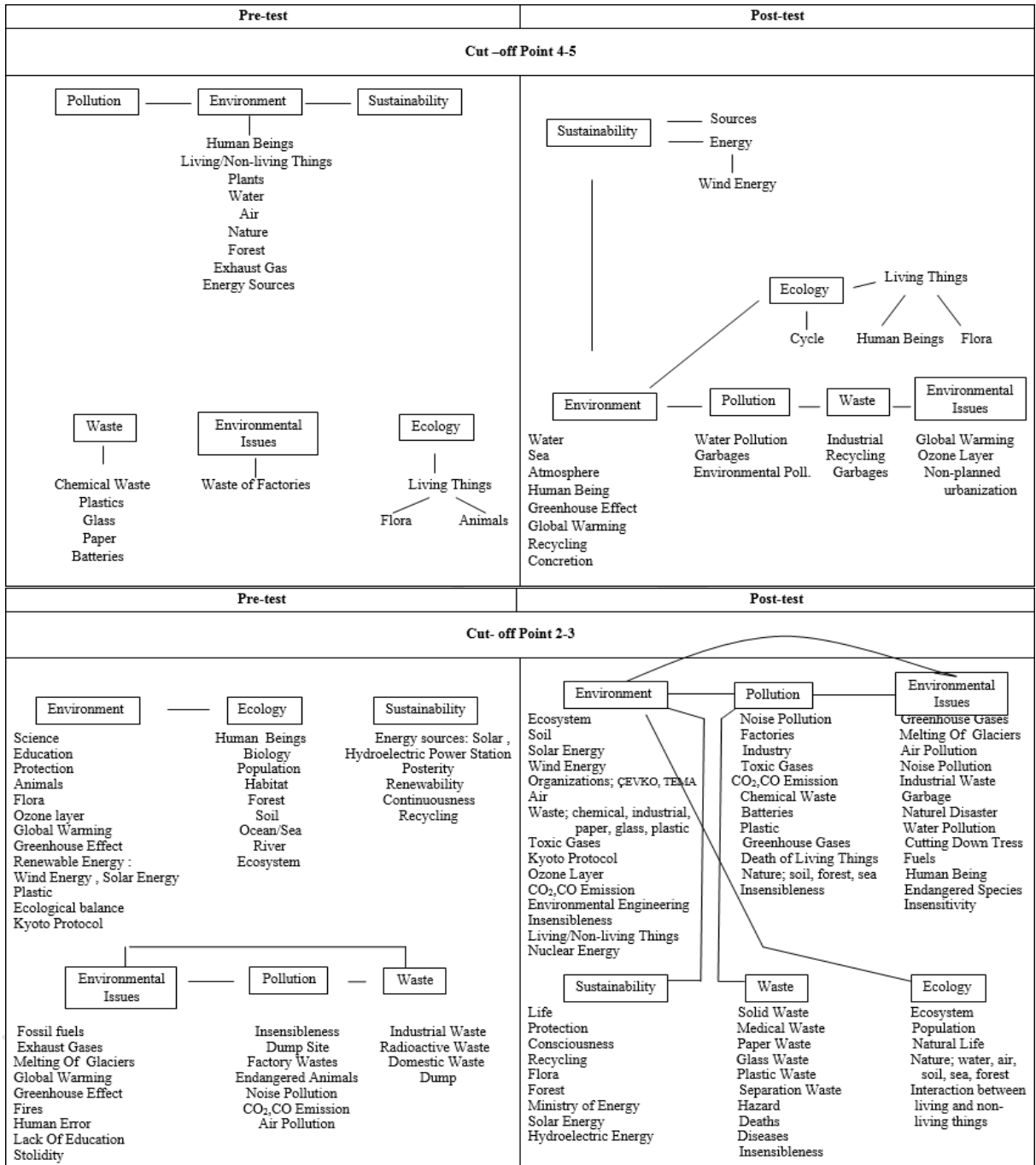
several concepts related to concept “environment” were written. The concepts “waste, environmental issues and ecology” were unrelated and disconnected. Several concepts related to these concepts were written. In the post test, all stimulus words were connected with each other. Related concepts for each stimulus words were also mentioned.

- 5) **Cut-off point 2-3:** At this cut-off point, in the pre-test, all stimulus words came forward. The relations between the stimulus words “Environmental issues, pollution and waste” and also related concepts were written. The stimulus words “environment” and “ecology” were associated. Although related concepts were written, the stimulus word “sustainability” was mentioned unrelatedly considering the cognitive structure and related concepts were written. Although the pre-service teachers wrote all concepts in the pre-test, the concepts were not associated with each other. In the post test, it is seen that there were relations between the concepts which show the cognitive structures of the pre-service teachers. At this cut-off point, all stimulus words were associated with each other and they were mentioned with their related concepts.

Table 3. The concept maps drawn according to the stimulus words in pre- and post WAT

Cut -off Point 10-11	
Pre-test	Post-test
<pre> graph TD Sustainability --- WindEnergy[Wind Energy] Sustainability --- SolarEnergy[Solar Energy] </pre>	<pre> graph LR Pollution --- Environment --- Sustainability Environment --- Protection </pre>
Cut -off Point 8-9	
<pre> graph TD EnvironmentalIssues[Environmental Issues] --- Pollution Ecology --- Balance </pre>	<pre> graph TD Environment --- Pollution --- AirPollution[Air Pollution] Sustainability --- Water </pre>
Cut-off Point 6-7	
<pre> graph TD Environment --- Waste Environment --- Animals Environment --- Forest Environment --- Plants Waste --- DomesticWaste[Domestic Waste] Waste --- Batteries Waste --- ChemicalWaste[Chemical Waste] Sustainability --- Posterity Sustainability --- NaturelSources[Naturel sources] Sustainability --- Tübitak2023[Tübitak 2023 Vision] Ecology --- Animals Pollution --- AirPollution[Air Pollution] </pre>	<pre> graph TD Environment --- Ecology Environment --- Soil Environment --- Waste Ecology --- EcologicalBalance[Ecological Balance] Sustainability --- Energy Energy --- Pollution Pollution --- WaterPollution[Water Pollution] Pollution --- SoilPollution[Soil Pollution] EnvironmentalIssues[Environmental issues] --- Insensibleness Waste --- Domestic Waste --- ClinicalMedical[Clinical/ Medical] Waste --- Recycling Waste --- Factories </pre>

Table3. (continue)



When the results of pre- and post-WAT have been examined, it can be expressed that the Environmental Protection course influenced the establishment of the connections with the stimulus words in the cognitive structures of the pre-service teachers regarding the stimulus words and the conceptual development.

Regarding the third research question, the responses of the pre-service teachers to two open-ended questions have been examined:

The pre-service teachers' opinions on their knowledge about the environment before and after the Environmental Protection course and also educational attainments within the context of this course are as follows:

A: *"Before taking this course, I had no idea about several concepts such as the Kyoto protocol, sustainable energy and renewable resources. However, after the course, as a university student, I have found a personal response for the question "how can we leave a better world for the future generations?"."*

B: *"Before taking the Environmental Protection course, nothing about this issue got my attention in our campus; however after the course I began to look everything about the environment carefully. I used to think that throwing trash on the ground is not an ethical behavior socially, but now I have realized that it is also important environmentally. Now I think that I do not throw trash on the ground in order to protect the environment."*

C: *"Before taking this course, I didn't know that I damage the environment rather than protecting it by retrenching. I also had no idea about the existence of foundations to protect the environment. I also learned a new vocabulary: sustainable, renewable, waste etc. I have seen everybody accepts that there is an environmental pollution, but nobody struggle for recycling. From now on, I live and act more consciously. I'm more careful about retrenching and I know that living or non-living things around us are also the possession of the future generations."*

D: *"Before taking this course, I had little information about recycling. After the course, I have realized its importance and benefits again. I have also learned the current concept of "sustainability". The environmental sustainability means recycling the renewable resources and protecting the recent conditions for the future generations. After taking this course, I have noticed how a small damage to the environment could cause a disaster after years."*

The pre-service teachers' opinions on the benefits of the activities (methods and techniques) which were applied within the scope of the Environmental Protection course are as follows:

E: *"I think that the interactive and updated methods (using videos and focusing on the recent events) are very useful. The videos have influenced the permanence of knowledge."*

F: *"We have used several techniques during the course such as interview, explanation and presentation. Each of us has chosen a topic according to our interests and needs, conducted research and presented the information we obtained by using a method in the class. I have enjoyed the course very much. It was a beneficial course as we participated actively. We have also found a chance to evaluate our abilities as being pre-service teachers. It was an active learning environment."*

G: *"The presentations made by our teacher or the students in the class and also the videos have raised my consciousness. I have shared the information I learned with my family and other people and tried to awaken their conscious towards the environment."*

D: “The activities which were applied within the scope of the course were very beneficial. First of all, we were informed about “Environmental Protection” by our teacher. We have learned about several updated information and concepts. We have shared information with each other while having a conversation. We have got a vision of “environmental protection”. We emphasized the importance of the issue in an audio-visual way with the videos we watched. Then we improved ourselves by making research during the preparation of our presentations.

4. CONCLUSION AND DISCUSSION

In this study, the effect of the ‘Environmental Protection’ course on the pre-service chemistry teachers’ affective tendency towards the environment and cognitive structure has been examined. Moreover, the pre-service teachers’ opinions on the content, applications and contributions of the Environmental Protection course have been also evaluated. It is determined that the Environmental Protection course which the pre-service teachers took during a semester as an elective course leads to a positive increase in the pre-service chemistry teachers’ affective tendency towards the environment. In general, the Environmental Protection course is effective in the development of the pre-service teachers' affective tendencies consisting of attitudes, awareness, merits and also sensibility towards the environment. When the literature is examined, it is seen that there is not any study consonant with the research results. However, there are studies which demonstrate that the affective tendency of the pre-service teachers who took a course related to the environment or environmental problems is higher than the pre-service teachers who did not take any related courses (Owens, 2000; Kayalı, 2010; Uzun & Sağlam, 2007). Furthermore, it is stated in some studies (Aksoy & Karatekin, 2011; Deniz & Genç, 2007) that the environmental education has no effect on the affective tendencies of the students. Tikka, Kuitunen and Tynys (2000) express that the environmental education has a positive effect on the attitudes towards the environment. Erten (2000) points out that the development of positive attitudes and value judgment towards the environment is only possible with the environmental education. In this context, the positive increase in the pre-service teachers' affective tendencies towards the environment can also be explained with the increase in the knowledge about the environment after the course.

After the Environmental Protection course, there is a development in the pre-service chemistry teachers’ cognitive structures related to the environment and the environmental issues and the connections related to the stimulus words. The pre-service teachers wrote totally 296 words (response) in the pre-test and totally 378 words (response) in the post test after the Environmental Protection course. When the concept map drawn according to the pre and post word association test of the pre-service teachers is examined, it is seen that the concepts given by the pre-service teachers were unrelated and disconnected in the pre-test, however they were related to each other in the post-test. Moreover, there was an increase in the number of the associated concepts. There are also many studies in different fields (education of chemistry, biology, solar system and space, Atatürk's principles) including the research about the cognitive structures of the students with word association test (Bahar & Özatlı, 2003; Bahar, Johnstone & Sutcliffe, 1999; Nakiboglu, 2008; Ercan, Taşdere & Ercan, 2010; Işıklı, Taşdere & Göz, 2011); however there is not any study on the environmental protection. In many studies (Khalid, 2003; Pe'er, Goldman & Yavetz, 2007; Timur & Yılmaz, 2011;), the pre-service teachers' knowledge about the environment and their relations with different factors are examined. However, the number of the studies which examine the effect of the environmental education on the knowledge and cognitive structures of the pre-service teachers is limited. Deniz and Genç (2007) demonstrate in their research that the students of the department of primary school teaching who took environmental science course were much more successful in the test than the

ones who did not take the course. Yavetz, Goldman and Pe'er (2009) state that there is an increase in the environmental literacy of the pre-service teachers after taking related courses.

Considering the pre-service teachers' opinions on the content, applications and contributions of the Environmental Protection course, they expressed that the course was beneficial as it is seen in the results: They have learned about several updated information and concepts related to the environment. These information and concepts have provided positive changes in their attitudes towards the environment. The environmental education given within the scope of the 'Environmental Protection' course have led to a development in the pre-service chemistry teachers' cognitive structures related to the environmental issues and an increase in their affective tendencies towards the environment. Ünal and Dımişkı (1999) state that the best education level for taking the environmental education is secondary education. Thus, the teachers who will work in the secondary school should be trained in such a way that they can give environmental education (Ünal & Dımişkı; 1998; IEEP, 1994). If teachers do not have enough knowledge, ability or responsibility to prepare their lessons oriented to the environment, it will not be possible to raise students with educational literacy (Plevyak Noe, Henderson, Roth & Wilke, 2001). So, it is quite important that the pre-service teachers should take effective and sufficient environmental education courses during their undergraduate education.

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The environmental education as a path for global sustainability.

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Abstract

Based on the theory of risk society, formulated by the German sociologist Ulrich Beck, the present study aims to examine how environmental education is a decisive step towards achieving sustainability amid global environmental crisis experienced by modernity. In this perspective, it should be initially mentioned that the risk society is characterized by being pervaded by abstract, invisible, unpredictable, uncontrollable, transtemporal and transboundary risks which arose from the reckless quest for technological innovations and intense industrialization. This risks currently forge the environmental crisis that plagues humanity. It is clear, therefore, that in order to achieve sustainability it is necessary to combat the crisis directly in its origin and source, which is the production system and the way of life generating the risks that are carried out in modernity. In this context, it is clearly important to analyze how environmental education may represent an important and decisive step in this fight, which binds the very essence upholding the fundamental right to life and human dignity.

Keywords: Risk Society. Environmental education. Sustainability. Ecologically balanced environment.

1. Introduction

Currently the world is experiencing a situation hitherto unique: it is known to mankind that the intense industrialization and frantic search for new technologies leaves a huge trail of environmental destruction; that this production system and consumption rate does bring along such drastic ecological problems that the very continuity of life on the planet is put in doubt. What is not known, though, is how to change this scenario or even if that change is indeed possible at this point. It can be seen, therefore, that the modern society experiences an environmental crisis forged within the context of a risk society.

Reflecting the growing concern of the population with such crisis and its potentially catastrophic effects, around the world scientists began to look for solutions, alternative measures that could be taken to resolve the crisis or at least contain it. Thus arises the idea of sustainability and sustainable development, whose foundation is grounded in the idea of rational use of natural resources in order to allow future generations to use these same resources to meet their own needs. This way it would be possible to protect the environment from unneeded environmental degradation and still keep the economy running, since the current production system remains intact.

For this to work, however, it is required the participation of the population in the most various aspects - in the promotion of a gradual change of environmental harmful habits, in responsible consumption and in

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collective monitoring both of enterprises and the government on environmental issues, to mention a few. In other words, it requires active and participative environmental citizens. This is why in parallel to the institution of this new way of viewing economy and production, there is also the need for a concern with the environmental education of the population, once considering that it is only through education that environmental citizens can be forged.

Therefore, this article aims to study the key role played by environmental education in the implementation of a sustainable development and to the overcoming of the environmental crisis forged within the paradigm of risk society.

2. Risk Society and the current environmental crisis.

The "Risk Society" is a social theory formulated by the German sociologist Ulrich Beck, featuring the social formation subsequent to that wrought by the Industrial Revolution as a society that experiences a crisis in its own premises, whose greatest consequence is the production of abstract, unpredictable and uncontrollable risks, not only for the general population but also for the scientific community, the very people who fomented the entire process of industrialization and all the technological advances, generating considerable uncertainty and fear (Beck, 1995).

Such risks are characterized also by being transboundary, because they affect all people on the globe regardless of where the risks were produced, and for leading to an imbalance between government and the people, since the politicians when asked or charged by the population for resolutions to these uncertainties what happens is an rhetorical legislative internalization of the matter without, however, having any pretense that this measure will produce practical effects. One type of risk in particular draws the populations' attention: the environmental issues (Beck, 1995).

What can be glimpsed is that these risks / uncertainties forge, in a great part, the environmental crisis experienced today by the global population, given the irrational use of natural resources, fueled by the aforementioned scientific-technical rationality, and no doubt by abundant production of toxic waste and garbage, due to industrialization, rampant mass production of goods and consumerism society that has co-opted this post Industrial Revolution (Machado, 2008). The perception of such issues has evolved gradually, largely due to major environmental disasters that terrorized the population, and so they realized that by degrading its own ecosystem as perpetrated for so long, mankind would perish along with it. But, at the same time, the population got struck by the perception that at the current stage of scientific and industrial development, a dramatic change to solve these issues is no longer an option (Leite and Ayala, 2008). Thus, the environmental crisis is currently experienced is, at the same time, generated within the this Risk Society and perpetuated by it.

3. Sustainability and sustainable development.

Before entering the topic of environmental education, it is necessary to explore what is, after all, this so called sustainability, or sustainable development. The term "sustainable development" is relatively recent, as well as the actual concern about the environmental degradation and the depletion of many signs that the planet begin to show after so many centuries of exploitation. Although the content itself has already been the subject of previous discussions (especially the name "eco-development"), such expression was enshrined in the Brundtland Report (1987), better known as "Our Common Future", resulting from the work of the World Commission on Environment linked to the United Nations (UN) (Desai and Soromenho-Marques, 2010).

The definition of sustainable development contained in this document is that which "meets the needs of the present without compromising the ability of future generations to meet their own needs" (WORLD COMMISSION ON ENVIRONMENT AND DEVELOPMENT).

In other words, what is evidenced is a mismatch between the three spheres - environmental, economic and sociopolitical - that generates a range of serious consequences (depletion of the environment, inequality and social exclusion, crisis of confidence in the state and its institutions, to mention a few), and it is necessary to find a balance between them to allow the maintenance of the way of life currently experienced by some and desired by many. This balance is precisely what the scientists behind the idea were seeking to achieve through the implementation of sustainable development: the conscious exploitation of resources (natural and human) so that future generations can benefit from the same environmental conditions to meet their own needs (whether real or imagined) (Sawer, 2011).

Currently there is talk of a shed/enabler of sustainable development, which is called "green economy". This, according to the definition offered by the United Nations Environment Programme (UNEP) in the publication "Towards a green economy: pathways to sustainable development and poverty eradication" is "one that results in improved human well-being and social equity, while significantly reducing environmental risks and ecological scarcities" (UNEP, 2011). This, despite being an initial concept, proposes guidelines for the feasibility of the proposed forging an economy concerned with protecting the environment and the social aspect of the current environmental crisis finally bringing a solution truly focused on socio-environmental issues.

The implementation of such idea, though, is it called a "sustainable development" or its enabler "green economy", the fact is that apart from society it is ineffective, if not truly impossible. It turns out, though, that the population, in spite of the pressing concern about environmental issues do not know how to change, or if they are ready to give up completely the comfortable way of life way of life produced by industrialization during the first modernity. To be possible to expect any different or active attitude from them, it is necessary to educate them to see the real problems involving this environmental issues and to teach them how they can help – why they are so necessary to promote the safekeeping of the land. In other words, it is necessary to educate the people so that they can act as environmental citizens, preserving nature in their own private circled and, also, demanding from the government and from private companies different strategies of economic growth that doesn't impact the environment – the environmental citizen is both an individual guard of the environment, through its own actions, and a concerned citizen that demands the same concern from political institutions and big companies.

4. Environmental education as a path to a sustainable future.

One may visualize from all the foregoing, that the current global population, were born and educated in the cultural and social structure that constitutes the rich society and, therefore, this environmental crisis. What did not occur, though, was its inclusion in the reality of side effects arising from the consumer market, industrialization and capitalist rationality. However, to be able to overcome the challenges posed by this crisis, achieving sustainable and effective protection of the ecologically balanced environment, it is necessary that citizens are aware of their role and how to exercise it, a goal that can only be achieved through environmental education.

The term "education", originating from Latin, means, in a broad sense, the act of instructing, develop, teach or convey to others previously acquired knowledge. Education, specifically in the environmental sphere, is a necessity in the context mentioned above, in order to create environmental awareness into the people, so that they can understand the dependency relationship that humans have with the environment that surround them, as well as the dangers that current social and economic situation creates for humanity itself by degrading it so unreasonably and continuously.

Thus, when a programme for environmental education is proposed, what it aims to achieve is to educate the population about what would be the sustainable development, the means of attaining it and the individual and collective role played by each person in this process (Guimarães, 1995). The importance of elucidating the population through environmental education was recognized by UNESCO in 1977, in the document "Educating for a Sustainable Future" ("Educating for a Sustainable Future"), which outlines the crucial importance of environmental education and its role in shaping society:

(...) Education can facilitate this change. However, for this to be done, students will need a new framework of knowledge, skills and values, they also need to demonstrate in practical measures that reflect an understanding of the interdependence between health and human welfare, the environment and the economy . Students should be encouraged to understand and apply the concepts of sustainability and view a sustainable future. They need to know the following goals for their future and understand that they have the personal power to make a difference and bring about change. Humans have always understood that some things may not be possible, however, we are beginning to understand that everything is possible it may not be wise or desirable. We have reached a point in human history when we have the technological capacity, social and ethical to make a sustainable world a reality, and therefore have an obligation to do so. Students should have the opportunity to understand this reality. (translation). (UNESCO)

The purpose of environmental education would, therefore, be to instruct, teach, educate people, inside and outside educational institutions (formal or informal) about the possibility of forging a society that develops in a sustainable and individual and collective duty to seek to achieve this objective (Guimarães, 1995). In other words, to educate the individual about their environmental responsibility as a citizen and a consumer (and as a supplier of goods and services, which is nonetheless may ultimately also consumers). This environmental responsibility of the consumer is defined mainly by the conscious action in the consumer market in order not to work, consume or encourage socially and environmentally inappropriate and abusive practices, which can be

defined in four main aspects: engagement, which implies a behavior activist consumer expresses intentionality consumption as an expression of a particular ideological position, policy, altruism, and ethical consumption, which occurs when the consumer's account of concerns about the welfare of others, environmental responsibility, which is based in the behavior consequences of private consumption on the environment, and ethics in the exchange ratio itself, which involves the consideration of ethical issues in the exchange process itself (Casali, 2011). The responsibility as an environmental citizen is outlined by the duty to individually act in order to promote a sustainable future even on the smallest things (washing the dishes, separating organic trash from that part that can be recycled, and so on), and also to act, on a public sphere, taking care of natural resources and demanding from both the government and private companies that they change to the best strategy possible for maintaining their agenda/businesses and protecting the environment at the same time.

Important to emphasize that this learning process should be in accordance with the culture and needs of each populational group, within the same country or not, in order to become part of everyday life for all people (Santos, 2003), regardless of their culture or way of living, and be capable of being applied in practice, preventing the theory about environmental education from being simply rhetoric.

Acknowledgements

From the exposed, it is possible to see that the Risk Society paradigm, born along with the massive industrialization and technological advance that constitute modernity, forges a society based on the fear of the invisible and uncontrollable consequences of its own creation. These risks, characterized also by being abstract, unpredictable and transboundary, are an important point of concern when it comes to the environmental sphere, once the frantic industrialization and production system adopted since the Industrial Revolution have left a huge environmental deficit, that single handed constitutes a difficult problem to face. Now, there are also these so called risks to add to the amount of concerns revolving the subject. It is within this context that an environmental crisis announced.

In spite the preoccupation on this matter, it is not yet known how to promote effective change into this scenario. In a response to the social concert over the matter, group of scientists started thinking about the case and trying to find alternatives, if not to solve the case completely, at least to contain the damage to its minimum. It was this way that in one of these groups financed by UN, it was forged the concept of sustainability, or sustainable development, that addressed the problem and offered a solution based on the ration use of the natural resources and the reinvention of the industry so that it could be more eco-friendly without losing growth or money. This concept, presented to the world in 1986, is now followed by an enabler called "green economy".

But the fact is that without a popular participation in large scale, any project that tries to solve the environmental crisis is doomed to fail, once it is them who perpetrate the damage, by their own hand, through their businesses, or simply by being supportive of companies and governments who do. To induce the population to join the cause for a sustainable future, it is necessary to educate them in an environmental sense, so they can truly understand why it is so important to protect the environment and the role they individually pay in this

scenario. This way environmental citizens are forged and along with them the possibility of implementing and sustainable development programme.

From this point of view, it is clear why the environmental education is so important. Without it there is no effective way of stopping the environmental crisis, neither of containing it. Education is the only way of shifting paradigms and creating a new form of seeing things, and in the environmental sphere it is no different – the environmental education constitutes a path for sustainability simply because without it any programme, any idea surrounding the case would not work. The population have to be aware of the cause and consequences of its actions, have to be able to address their government directly to discuss the issue and to demand results, have to be able to consume careful and wisely, always preferring those companies who are eco-friendly. This way, chance is possible, as it is possible a sustainable future.

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The evaluation of websites teaching english as a foreign language (efl)

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Abstract

English is the most commonly taught foreign language all over the world. As a result of this fact, materials designed for English language teaching has been increasing enormously. Besides coursebooks and other written resources technology integrated language teaching provides many materials for language learners as well. Websites might be regarded as online teaching tools which can be very effective resources both for learners and teachers. However, if the website which is aimed to use as a resource was not designed in an efficient way, it might lead to wasting time. In addition, not well designed websites might include wrong guidance for language development.

Taking the role of websites in language teaching into consideration this study focuses on the evaluation of websites designed for teaching English. For this aim, a questionnaire prepared for website evaluation was modified with the views of experts and results gotten from a group of students as the first step of ongoing project on the evaluation of language learning websites. Latest version of the questionnaire was given to totally 56 English language learners studying at the school of foreign languages. The learners stated how much they use the internet and the websites in their language learning and how find the websites they have been using. Learners also evaluated the websites of their own choice. Some suggestions were made with the help of the results.

Keywords: Teaching English, Foreign Language Education, Website Evulation

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Introduction

The role of websites in learning foreign languages has been progressively increasing as a result of the developments in educational technology. As English is one of the most commonly taught languages, the numbers of English teaching websites have been developed accordingly.

Internet, computers, and online websites that contain well designed, established and evaluated pedagogical materials offer a significant potential for education (eg. Wang & Coleman 2009 cited in Kartal & Uzun, 2010). Aydın (2007:18) states that the Internet has been a chance for learners who learn English as a foreign language to improve their discourse, grammar, vocabulary and language skills in a real and natural environment. This fact has attracted attention of many researchers. However, Yang and Chan (2008) argue that even though there are many studies on developing general guidelines for evaluating educational websites, these studies are not that specific to have a practical value. As a result, needs of English learning website users are not yet met. Similarly, Lancien (1998) states that although there are many foreign language teaching websites, it may not be possible to ascertain that these are well organized, and pedagogically and methodically well established (cited in Kartal & Uzun, 2010). In sum, while language learning websites using Web 2.0 technology may offer great promise for foreign language education, there is a lack of research on how users currently use these sites for collaborative learning and social interaction purposes. There is also a lack of research on the pedagogical and technical usability of these sites and how potential language learners could use these sites to enhance their own language learning abilities (Stevenson and Liu, 2010:233).

Kartal and Uzun (2010) define characteristics of websites in three categories. According to them a good website should have a good, user-friendly design where each part and section should be clearly seen and easy to use, it should allow for easy transition between sections, the color should not tire the eyes, it should be able to use some other programs. In addition, a good website has to include some contextual features. Users should be able to find materials appropriate for the level, subject, or type of their choice, the materials should be up to date and authentic in order to match the needs and interest of the users, there should be materials of every type for every level and every subject, the available materials should be supported by extrinsic sources and programs, the exercises in the site should allow for customization and contribution of the users, the users should receive feedback and the construction of practice and testing tools should serve option for learners. A good website should have some pedagogical characteristics like having explanation and guidance about exercises, providing feedback and having appropriate materials for level and needs of the users. Stevenson and Liu (2010:236) also emphasize the importance of technical and pedagogical usability of online language learning environments because according to them the ease of use of a website may be just as important as the effectiveness of its learnability. In addition to this, according to Shield and Kukulka-Hulme (2006) components of usability includes idea of easy to learn and easy to use. So, a system with good interaction design should be easy to use and generally offer a better user experience.

Researchers tend to conduct studies on developing website evaluation criteria and website evaluation. Thus, developing evaluation guidelines by taking features of good websites provides a kind of decision making both for the learners and the students. At this step not only the comments of the experts but also the opinions of language learners play an important role. However, as it was stated by Liu and the others (2011:66) most studies focus on developing evaluation guidelines based on experts' comments or theoretical knowledge so the opinions of language learners are often neglected. Furthermore, the criteria should take multi-dimensional aspects of the websites into account. As a result, to develop an evaluation criteria for English learning websites based on both expert and learners opinions is still an important and challenging issue.

Purpose of the Study

This study is a part of an ongoing study on the role of websites in language teaching. The overall purpose of this study is to investigate how language learners evaluate the websites they use to learn English or other foreign languages and how they perceive the role of websites for their language development. As part of this research, this study focused on the following research questions as below;

1. Do students use the Internet when they study English?
2. What is the level of satisfaction of the learners in using websites?
3. What is the overall evaluation of the learners on English teaching websites?

Data Collection Tool

In order to address research questions background information about the learners and site feedback were collected through a questionnaire consisting of a) demographic information, b) English learning and web experience and c) site feedback parts. The instrument was originally developed by Liu and the others (2008). The original questionnaire was given to 5 experts in English language teaching, computer science and curriculum development to take their opinions. Some modifications were made like deleting some items and changing wording. Some new open ended questions were also added to get more information from the students. After this step, first version of the questionnaire was given to the students studying at Linguistic department of a state university in Istanbul. They were given one week to complete the questionnaire as a part of their "language teaching methods" course and they evaluated an English teaching website of their own choice. After the analysis of collected data, the questionnaire was modified by adding some more questions. Latest version of data collection instrument consisted of 19 questions and two Likert scales. In site feedback evaluation part, participants evaluated a chosen website by the help of a scale of 1 (very unsatisfied) to 5 (very satisfied). In the second part, participants were asked to rate how useful each site was to improve different English skills on a scale of 1 (useless) to 5 (very useful).

Participants

Totally 56 students studying English at the school of foreign languages participated in the study. The university is a state university located in Anatolian part of İstanbul. All students have already passed central exam in order to be a student at the university and have to continue one year long English language preparation programme. After preparation year they will start studying at different departments like history, international relations and philosophy.

%37,5 (21) percent of the participants are male and %62,5'i (35) are female students. %69,6 (39) of the students are aged between 16-20, %26,8 of the students are aged between 21-25 and %3,6 of the students are aged between 26-30.

English level of the students is given in the table below

Table 1. English Level of Participants

English level	Percentage	Number
Intermediate	%87,5	49
Advanced	%12,5	7

In the study, information about how long the participants have been using computer and how long they have been learning English was gathered. This information is given below;

Table 2. Duration of Computer Usage and English Learning

Years	Computer Usage		English Learning	
	Percentage	Number	Percentage	Number
Less than 2 years	% 7,1	4	% 26,8	15
2-5 years	% 12,5	7	% 17,9	10
5-10 years	% 44,6	25	% 39,3	22
10-15 years	% 28,6	16	% 16	9
More than 15 years	% 7,1	4	% 0	-

It is seen that most of the participants chose the option of 5-10 years both for computer usage and English learning. Therefore, it can be said that there is correlation between the duration of computer usage and English learning.

Information About the Internet Usage

%87,5 (49) of the participants stated that they prefer using PC while others %12,5'i (7) prefer using MAC.

Participants shared information on where they access the Internet. They were able to give more than one answer for this question. Home comes as first place of the Internet access and university follows it as the second place of access. Analysis of their answers is given below.

Table 3. Internet Access

Place of the Internet Access	Percentage	Number
Home	% 87,5	49
Work	% 8,9	5
Dormitory	% 10,7	6
University	% 58,9	33

It was learned in the study that how much time they spend on the Internet per day. Daily internet usage of the participants is given in table 2.

Table 4. Daily Internet Usage per Hour

Daily Internet Usage per Hour	Percentage	Number
less than one hour	% 10,7	6
1-2 hours	% 39,3	22
2-4 hours	% 41,1	23
4-7 hours	% 5,4	3
more than 8 hours	% 3,6	2

The questionnaire included a question to learn for what the participants generally use the Internet. They were given seven options. Their responses were shown in the table below.

Table 5. Purposes of the Internet Usage

Purposes of the Internet Usage	Percentage	Number
Study	% 73,2	41
Research	% 76,7	43
Education	% 64,2	36
Entertainment	% 46,4	26
News	% 75	42
Shopping	% 35,7	20
e-mail	% 71,5	40

As it is seen on the table, research comes as the first reason of internet usage. Following news, study and using e-mail follow the option of research. Shopping is the least preferred reason to use the Internet.

In the study, participants were asked to rate their level of computer skills. Most of the students defined themselves as experienced users of the computer (%51,8) and less experienced users (%37,5) while only %7,1 of the students stated that they are not experienced.

Table 6. Computer Skills

Computer Skills	Percentage	Number
Not experienced	% 7,1	4
Less experienced	% 37,5	21
Experienced	% 51,8	29
Very experienced	% 3,6	2

The Role of Internet in Learning English

Participants were asked whether they use the Internet to study English or not. %87,5(48) of the students stated that they use the Internet to study English. On the other hand, a very small percent of the students (% 14,3) do not use the Internet to study English.

In the study, it was also aimed to learn how much the students like using the web to learn English. It was found that most of the participants %44,6(25) like using the Internet in learning English. Only %5,4 (3) of the participants does not like using the Internet at all. In addition, %19,6 (11) likes using the Internet a little, % 7,2 (4) likes it very much while %23,2 (13) does not like very much.

Participants gave information about how much time they spend on the Internet for studying English. According to results, %28,6 (16) spends less than an hour, %53,6 (30) of the participants spends between 1-2 hours and %17,9 (10) spends time between 2-4 hours.

The survey also included an open ended question in order to learn for what specific purposes is the Internet used while studying English. As all the participants did not give their comments not the information about the percentage but number of the participants is given in the table.

Table 7. Specific Purposes of Internet Usage in English Learning

Specific purpose	Number
Dictionary	6
Listening	5
Speaking	4
Reading	3
Grammar	3
Translate	2
Learning	2
Research	2
Understaning	1
Social media follow for agenda	1

As it is seen on the table, 6 of the participants use dictionary while studying English. Total number of the participants who use the Internet to develop skills (listening, speaking and reading) is 12. 3 students use the Internet for grammar. Translation, learning and research are each stated by two students.

Evaluation of Websites

Participants were requested to give their opinions about the website they use frequently in learning English. They rated their level of satisfaction with 5 scaled statements. The criteria consisted of totally nine statements. Each of them was evaluated separately.

Table 8. Evaluation of Websites Used for Learning English

Statements	Mean
1. Ease of finding the information/activities	3,5
2. Quality of information/activities	3,8
3. Ease of reading the text	3,5
4. Appearance of site, including colors and graphics	3,2
5. Speed of pages displaying	3
6. Fun, entertainment value	3
7. Overall learning experience	3
8. Ease of understanding the instruction for activities	3
9. Ease of moving around the site without getting lost	3,2

With the help of another 5 scaled criteria participants evaluated usefulness of websites in developing some skills including grammar and culture.

Table 9. Usefulness of Websites in Developing English

English Skills	Mean
Speaking	2,9
Listening	3,2
Reading	3,6
Writing	3,4
Grammar	4
Culture	3,3

Site feedback part of the questionnaire included a question on recommendation of participants. They gave their recommendation for the website they evaluated. According to results, %48,2 of the participants is not sure to recommend the website. %30,3 stated that they definitely recommend.

Table 10. Participants' Recommendation

Opinions on Recommendation	Percentage	Number
No way	% 7,1	4
I am not sure	% 48,2	27
I'll definitely recommend this site	% 30,3	17
No answer	% 14,4	8

Characteristics of Websites

The study included open ended questions in order to get more detailed information about website users' opinions and learn more about characteristics of a good website from language learners' perspectives. The participants were asked "what should an English teaching website include?". Their answers and the number of the participants for each answer are given below.

Table 11. Characteristics of Websites From Learners' Perspectives

Characteristics of English teaching website	Number
It should include listening part	6
It should include reading part	3
It should include speaking part	3
It should include useful information	3
It should include enjoyable games	3
It should include explanation on content	3
It should be understandable	3
It should include Exercises	2
It should include Unknown words	2
It should include scale of difficulty	2
It should include Everything	2
It should be easy to use	2
It should be colourful	1
It should be visual	1

Results and Discussion

This study is a part of an ongoing research on the evaluation of websites developed for foreign language teaching. As first step of the research, it was aimed to learn English preparatory students' views on using websites and the Internet in English language learning, to make them evaluate the websites they frequently use. For this aim, a questionnaire developed by Liu and others (2008) was modified with the help of the experts' views and students studying at Linguistics department. Latest version of the questionnaire was given totally 56 students studying English.

It was found in the study that almost all the students defined their level of English as intermediate. Most of the participants stated that they have been learning English between 5-10 years. Similarly, again most of the participants stated that they have been using computer between 5-10 years. Most of the learners find themselves as experienced computer users as well.

Home is the most preferred place for the Internet access. University comes after home for the Internet access. When participants' responses for daily Internet usage it was found that most of them spend between 2-4 hours on the Internet.

They were given options to the participants in the study to learn why they use the Internet. It was found that they mostly use the Internet for research and to follow news. To use the Internet to study and e-mail were also given among the most preferred reasons. They were also asked for what specific purpose they use the Internet in learning English. Dictionary comes on top of the list. Three language skills, listening, speaking, reading, follow the reason of dictionary.

The learners were asked to evaluate a website of their own choice. They firstly wrote down their favourite websites in learning English and then evaluated one of them. The results were analyzed together as the aim of the study is not to get information about the websites or evaluate each website separately but to learn overall evaluation of the learners as the first phase of ongoing study.

The learners rated their level of satisfaction for the website with the help of a scale from 1 (very unsatisfied) to 5 (satisfied). There were nine statements in the site feedback part of the questionnaire. Mean of all statements is not less than three. It shows that all the participants are satisfied with the websites they chose. However, mean of quality of information/activities, ease of finding information/activities, ease of reading the text, appearance of site and ease of moving around the site got higher mean comparing to speed of pages displaying, fun, entertainment value, overall learning experience and ease of understanding the instruction for activities.

In site feedback part, the learners were also required to evaluate the usefulness of the website by rating between 1 (very useless) to 5 (very useful). Grammar got the highest mean. Reading, writing and culture followed the option of grammar. It was seen that speaking is the least preferred option.

Most of the students were not sure to recommend the website they evaluated whereas almost %30 percent stated that they definitely recommend that website.

It was aimed to learn what a website should include from the learners' views. Language skills are the most given parts for an English teaching website. Useful information, games and explanation were also stated among the characteristics of website.

After the analysis of the results it was seen that most of English language learners use the Internet to help their English language learning. There are various reasons for their usage. It might be concluded that learners who participated in this study are satisfied with the websites they have been using. Moreover, they find them useful to develop their language skills and their knowledge in culture.

For further research, weak points of the websites stated by the participants and their views on the components of the websites might provide useful information both for a much more detailed analysis of the websites and developing new websites appropriate for language learning.

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The evaluation of responsibility education strategies of primary school teachers

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Abstract

The main purpose of this study is examining the responsibility education applications of kindergarten and elementary school teachers. The research was done in survey model. The study group of the research consisted of 199 teachers. The data of the research was collected with "Responsibility Education Strategy Scale". For data analysis, arithmetic mean, t test, variance analysis and Pearson's r test were used. After the research, it was determined that teachers use informative responsibility education strategies more frequent than applied responsibility education strategies.

Key words: Primary school, responsibility education, education applications, teacher

1. INTRODUCTION

Sense of responsibility is accepted as an important characteristic from the point of socialization, generativity, self-realization and social and personal development of an individual and being a useful individual (Sierra, 2010; Töremen, 2011; Packer & Sharrar, 2003). Illeris (2003) stated that responsibility is a key problem in terms of personal and social development. It is frequently mentioned that responsibility underlie lots of problems that are encountered in personal, social, political and economical life (Töremen, 2011; Yeşil, 2013; Şahan, 2011; Shavelson, 2007; Clouder, 2009; Gosselin, 2003).

Individuals acquire sense of responsibility in the course of life through education. (Töremen, 2011; Gosselin, 2003). According to Macready (2009), schools are significant places for giving responsible behavior habits. Teachers are very important educational factors because of being determiner in planning, applying and evaluating the teaching period (Sönmez, 2010; Şahan, 2011). Therefore, the quality and quantity of the applications which teachers plan and do for educational purposes are important for getting students to acquire sense of responsibility.

Evaluating generally, it is seen that teaching approaches and applications are examined under two heading as traditional and modern approaches and applications in the literature. While the traditional perspective contains teacher-centeredness and a knowledge and informational priority approach, the modern approach prioritizes some terms and applications such as student-centeredness, active participation, individual differences and developing self-regulation and self-control skills of learners (Sönmez, 2010; Ellinger, 2004; Illeris, 2003).

When considered responsibility education from this point of view, it can be said that two approaches could be basically used. One of them is mostly external control dependent as part of traditional education and contains some applications such as information transfer, teaching good things to students and asking them to behave in the

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same way. The other application includes the activities that need students being active participants during teaching-learning process, managing their own learning processes, exploring and researching.

The results of the researches on responsibility education show that modern educational approaches and applications which are learner participation-driven and by which students could use and develop their autonomous learning, self-regulation, self-control and self-evaluation skills need to be used for resulting the process in success (Packer & Sharrar, 2003; Sierra, 2009; Stockdale & Brocket, 2010; Shavelson, 2007). Coeckelbergh (2006), Ellinger (2004) and Illeris (2003) stated that self-control and self-regulation skills are effective on students acquiring sense of responsibility and Carnell (2005) stated that participative learning applications are effective on it. Therefore, it can be said that some applications such as giving responsibility to students in educational environment by teachers, following students, making students participate in learning process and allowing students to determine in planning, executing and evaluating learning processes would make a significant contribution to students acquiring sense of responsibility.

However, it is seen that traditional educational understandings and applications are still applied by teachers in lots of educational institutions. This situation can be interpreted that responsibility education workings in schools can be hard to result in success. Also, it is important that wrong or ineffective teaching applications of responsibility education by teachers should be determined and required precautions should be taken. Constitutively, this study is about determining the quality and quantity of instructional applications about which primary school teachers get their student to gain sense of responsibility.

1.1. Purpose of Research

The main purpose of this research is determining how often and which instructional applications kindergarten and primary school teachers do for responsibility education. Under this general purpose, these questions are primarily answered in the research:

1. How often do primary school teachers give places to the informative and applied responsibility applications?
2. Is there any differentiation between teachers in using informative and applied responsibility education strategies?
3. Do the frequencies of teachers' responsibility education applications differentiate according to variations of branch, gender and professional seniority?
4. Is there any relation between the professional seniority of teachers and the frequency of their responsibility education applications?

2. METHOD

2.1. Model of Research

The research is a descriptive and quantitative study which is done in survey model. The strategies and teaching applications used by primary school and kindergarten teachers for getting their students to acquire sense of responsibility were tried to be described.

2.2. Target Population and Sample of Study

The primary school and kindergarten teachers working at 30 schools in the Centrum of Kırşehir are the target population of the research. The 199 teachers who participated in the education seminary organized by National Education Directory at the end of 2011-2012 school years and voluntarily filled in the data collection tool are the sample of the research.

2.3. Data Collection

The data of the research was collected with “Personal Information Form” and “Responsibility Education Strategy Scale” (RESS) which was prepared for determining the frequency of the applications of teachers for getting their students to acquire sense of responsibility from reference teacher group.

2.3.1. Data Collection Tool

Personal Information Form: It was used for collecting the data related to the independent variables of the research.

Responsibility Education Strategy Scale (RESS): It is a scale developed by the researcher which is 34-point, five-point likert type and is collected under two factors. It was determined that KMO value of the scale is meaningful at the level of 0.947; the values of Bartlett Test are meaningful at the level of $\chi^2=6502,170$; $sd=561$; $p<.001$ and the item-total correlation values by Pearson’s r test are meaningful at the level of $p<.01$ for each of the items. The name of the first factor is “Informative Responsibility Education (IRE)” and the name of the second factor is “Applied Responsibility Education (ARE)”. There are choices of “(0) never”, “(1) rarely”, “(2) sometimes”, “(3) mostly” and “(4) always” across the items in the scale.

The information of statistical features of the scale is summarized in Table 1:

Table 1. The Values of Reliability and Validity Analysis of Responsibility Education Strategy Scale According to the Factors

Name of Factor	The Number of Item	Variance (%)	Cronbach Alpha
IRE	21 items	24,289	,925
ARE	13 items	20,422	,857
RESS	34 items	44,711	,942

2.4. Analysis and Interpretation of Data

Arithmetic mean, standard deviation, related and non-related sample t test, ANOVA, Scheffe and Pearson’s r correlation test were done on the data; the level of $p<.05$ was seen as adequate for meaningfulness of difference

and relation. For the interpretation of arithmetic mean values of the frequency of teachers' responsibility education applications, the values between 0.00-0.80 for "never", the values between 0.81-1.60 for "rarely", 1.61-2.40 for "sometimes", 2.41-3.20 for "mostly" and 3.21-4.00 for "always" were seen as meaningful.

3. FINDINGS

The findings obtained at the end of the research are presented and explained above in tables:

3.1. The level of teachers performing responsibility education applications

The findings related to the frequency of the applications teachers do in the framework of responsibility education through teaching processes are presented in Table 2 and Table 3 according to the factors:

Table 2. The level of teachers' giving places to informative responsibility education applications through teaching processes

Items	N	X	Ss
1 I explain how they should do their homework	198	3,41	,88
2 I give feedback about the quality of their studies	199	3,48	,71
3 I give examples from responsible and irresponsible, I explain.	198	3,18	,75
4 I explain my expectations about doing their duty at group works.	197	3,18	,75
5 I pay more importance to pull their weight for others.	198	3,18	,77
6 I make them discuss by telling precedents about pulling or not pulling their weight.	199	2,99	,91
7 I tell/remember them negative cases they would come across if they didn't do their duty.	198	3,10	,80
8 I tell to them that I trust them about behaving according to responsibilities that I give.	198	3,40	,77
9 I allow and guide them to determine/plan the time, the works to do, the people and sources to benefit from about their responsibilities on their own.	198	2,95	,86
10 I write and post responsibilities with general and slogan expressions on the wall of school or class	198	3,28	,77
11 I lead them to connect their speech and behaviors with their results.	197	2,97	,85
12 I remember/make them feel that I pull my weight for them.	198	3,10	,90
13 I try to persuade that success is possible only if they pull their weights.	198	3,25	,89
14 I lead them to find their needs by evaluating themselves about their homework	198	2,91	,93
15 I remember responsibilities of students to their parents and I want them to control it	198	3,24	,89
16 I explain to parents how they should behave their children to get them to acquire sense of responsibility	199	3,25	,89
17 I am a model by obeying the rules of school and class	199	3,47	,77
18 I inform about the subjects related to in-class and in-school responsibilities	197	3,13	,84
19 I give more importance to pull their weights	197	3,21	,87

20	I tell stories, have them read books or have them watch movies about the subject of responsibility	198	2,95	1,12
21	I collaborate with the other different branch teachers about following students' pulling their weights	199	2,96	,96
Informative Responsibility Education (IRE)		192	3,18	,60

As seen in Table 2, the frequency of teachers' giving places to IRE applications is between $x=2.91$ (mostly) and 3.48 (always). The teachers stated that they do at most giving feedbacks to students about their studies and being a model; at least leading students to find their own mistakes by getting them to self-evaluate about their homework from the applications of informative responsibility education factor. This can be interpreted that teachers give more places to make students hear and feel external expectations while they give less places to have students use auto-control skills.

Table 3. The level of teachers' giving places to applied responsibility education applications at teaching processes

Items	N	X	Ss	
22	I give little tasks out of lesson that students can overcome	199	2,93	1,04
23	I do groundwork for students' taking responsibility by having them do group works	198	2,46	1,23
24	I want them to care for an animal or a flower, etc that can be cared at home	199	2,68	1,16
25	I give responsibilities to students to manage different works, work groups and work processes (leadership, representation, etc)	199	2,97	1,04
26	I have lists prepared for answering questions of "Which tasks do I retard today? Which one do I fulfill?"	198	2,19	1,13
27	I give responsibilities to all of students by organizing in-class and in-school social and cultural activities	198	2,79	1,16
28	I want them to take responsibilities about their house (paying bills, helping housework, shopping, etc)	198	2,56	1,22
29	I give presents (thank-you note, etc) to parents who try to educate and control their children in terms of responsibilities	199	2,12	1,35
30	I have them play in-class games that need to take responsibility	199	2,82	1,08
31	I prepare study plan with students and I control to make them behave appropriately	198	2,80	1,12
32	I direct parents to give responsibilities to their children about housework, etc.	198	3,08	1,03
33	I provide students to share their responsibilities with their friends in class that they fulfill out of school (at home, on the street, etc)	198	2,92	1,07
34	I hold competitions between group about fulfilling their responsibilities	198	2,60	1,14
Applied Responsibility Education (ARE)		195	2,70	,83

As seen in Table 3, the frequency of teachers' giving places to ARE applications is between $x= 2.12$ (sometimes) and 3.08 (mostly). The teachers stated that they give places at most to applications of directing parents about giving responsibility to their children; they give places at least to applications of rewarding parents

who make a point of responsibility education ($x=2.12$) and having students prepare checklist for themselves. The teachers stated that they give places at most to applications of directing parents about giving responsibility to their children; they give places at least to applications of rewarding parents who make a point of responsibility education ($x=2.12$) and having students prepare checklist for themselves ($x=2.19$) around ARE applications. Therefore, it can be said that teachers pay attention to parent support about responsibility education, on the other hand, they don't give much places to encouraging parents and having students prepare auto-control list for themselves.

3.2. The levels of teachers' using informative and applied responsibility education strategies and the differentiation between them

Table 4. The level of teachers' giving places to applied responsibility education applications during teaching processes and the differentiation between them

	N	X	Ss	t	sd	p
IRE	190	3,18	,60	7,448	189	,000
ARE	190	2,70	,84			

In Table 4, it is seen that teachers give places to IRE applications at the value of $x=3.18$ (mostly) and ARE applications at the level of $x=2.70$ (mostly). The teachers significantly differently give more places to IRE applications ($p<0.01$). So, it can be said that teachers make more time for informing works with the purpose of responsibility education. That applications take much time, opportunities are limited and pursuance is hard may cause this situation.

3.3. The differentiation of the frequency of teachers' giving places to responsibility education applications according to branches

Table 5. The differentiation of the frequency of teachers' giving places to responsibility education applications according to their branches

	Branch	N	X	Ss	Levene		t	sd	p
					F	p			
IRE	Kindergarten	33	2.73	,70	,826	,355	5.001	190	,000
	Primary school	159	3.27	,53					
ARE	Kindergarten	33	3.14	,81	,899	,297	3.503	193	,001
	Primary school	162	2.60	,80					
RESS (Generally)	Kindergarten	33	2.89	,51	,127	,751	1.269	188	,206
	Primary school	157	3.02	,55					

As seen in Table 5, while the branches of the teachers cause a meaningful differentiation on the frequency of teachers' using IRE and ARE strategies, no differentiation is generally found. While primary school teachers use IRE applications more frequent, kindergarten teachers use ARE applications more frequent with a meaningful difference ($p<.05$). This can be derived from the differentiation of the literacy and note-taking levels of students.

It can be said that while games and activities are chosen more at kindergarten, the methods based on information transfer are preferred more at primary schools.

3.4. The Differentiation of Teachers' Responsibility Education Applications According to Their Genders

Table 6. The differentiation of the frequency of teachers' giving place to responsibility education applications according to their genders

	Gender	N	X	Ss	Levene		t	sd	p
					F	p			
IRE	Male	103	3,12	,60					
	Female	87	3,24	,59					
ARE	Male	102	2,60	,80					
	Female	91	2,78	,85					
RESS (Generally)	Male	101	2,92	,57					
	Female	87	3,07	,52					

In Table 6, it is seen that the frequency of teachers' using responsibility education strategies according to their genders militate in favor of females in terms of sub-factors and the general of the scale; however, there isn't any meaningful differentiation. Therefore, rather than the differentiation is not meaningful, female teachers generally behave more sensitive about using responsibility education strategies

3.5. The differentiation of the frequency of teachers' giving places to responsibility education applications according to their professional seniority

Table 7. The differentiation of the frequency of teachers' giving places to responsibility education applications according to professional seniority

Factors	Groups	N	X	Ss		K T	df	KO	F	p	Scheffe
IRE	(1) 1-7 years	35	2,92	,56	Between groups	6,530	3	2,177	6,532	,000	
	(2) 8-14 years	31	2,93	,82	Within groups	62,647	188	,333			
	(3) 15-21 years	47	3,28	,55	Total	69,177	191				1-4
	(4) 22+ years	79	3,33	,47							2-4
ARE	(1) 1-7 years	37	2,76	,85	Between groups	1,682	3	,561	,809	,490	
	(2) 8-14 years	33	2,83	,86	Within groups	132,341	191	,693			
	(3) 15-21 years	46	2,56	,85	Total	134,023	194				---
	(4) 22+ years	79	2,68	,79							
RESS (Generally)	(1) 1-7 years	35	2,86	,55	Between groups	1,387	3	,462	1,525	,209	
	(2) 8-14 years	30	2,91	,73	Within groups	56,384	186	,303			

(3) 15-21 years	46	3,01	,51	Total	57,770	189	---
(4) 22+ years	79	3,08	,48				

As seen in Table 7, the levels of teachers' applying IRE strategy are at the value of between $x=2.92$ and 3.33 , and the frequency of their ARE strategy is at the value of between 2.56 and 2.83 according to their professional seniority. When looking comparatively at the results on tables, it is seen that IRE strategy is at most used by the teachers who has 22 year-old and over seniority ($x=3.33$), it is used at least by the teachers who have 1-7 year-old professional seniority ($x=2.92$). ARE strategy is used at most by the teachers having 8-14 year-old seniority ($x=2.93$) while it is used at least by the teachers who have 15-21 year-old seniority (2.56). So, it can be said that IRE strategy is used more by teachers as soon as their professional seniorities increase.

On the other hand, it is determined that there is a meaningful differentiation on the frequency of teachers' giving places to IRE applications according to their professional seniority. After Scheffe test used for determining the cause of differentiation, it is determined that the differentiation is derived from the frequency of the teachers who have 1-7 and 8-14 year-old seniority and the teachers having 22 and over year-old seniority giving place to IRE applications. Therefore, it can be said that teachers give more places to IRE applications as soon as their professional seniority year increase.

3.6. The differentiation of the frequency of teachers' giving places to responsibility education applications according to their professional seniority

Table 9. The relation between the frequency of teachers' applying responsibility education strategies and their professional seniority

		IRE	ARE	RESS
Professional seniority	r	,226	-,039	,123
	p	,002	,586	,091
	N	192	195	190

In Table 9, it is seen that there is only a meaningful and positive relation at IRE factor between the frequency of teachers' applying responsibility education strategies and their professional seniority ($p<.05$). Therefore, it can be said that the frequency of teachers' giving place to IRE applications increase as soon as their professional seniority year increase.

RESULT AND DISCUSSION

At the end of the results reached by researches , with the purpose of determining general quality of applying responsibility education and determining the applying frequency that primary and kindergarten teachers did are presented above by discussing.

1. Teachers prefer to have students acquire sense of responsibility shaping according to external expectation both around IRE and ARE strategies especially open to the external control. But while teachers more frequently explain about homework and give feedback, they give fewer places to students' auto-control applications. It can be said that it is contrary to the fact of responsibility and to the concept of modern education and training. Individuals' feelings are shaped according to expectation of external world and according to the internal values like aims, ideals, and beliefs (Carnell, 2005; NREL, 1982; Töremen, 2011). But Coeckelbergh (2006) indicates

that sense of responsibility is shaped with internal motivation instruments or with external control instruments like law, social investment. According to him, these are the formations which are more permanent and effective, compatible with the life and supported with the internal process. Even excessive dominance of external control instruments create disadvantage about acquiring a sense of responsibility permanently by decreasing effects of internal control instruments. Yurtal and Yondar (2009) also reach the similar results at the end of their study. On the contrary, Illeris (2003) indicates that at small ages, the effects of external stimulus and at bigger ages, the effects of internal stimulus are becoming more determining about responsible behavior rather than internal stimulus.

On the other hand it draws attention that improving and making clear one's own feelings and ability are focused at the important part of modern education approaches and application. Notions like self-evaluation, self-management, self-control, self-audit and inner motivation are noticed and put on the central position. (Coeckelbergh, 2006; Illeris, 2003; Ramos & Anonuevo, 2011).

According to this it can be said that it has a contradiction about both tendency about modern education approaches and applications and responsibility's nature with teachers' choice about applications' frequency. There can be problems about responsibility senses or conscious to be permanent and effective which does not base on inner motivation and beliefs which is shaped according to external expectation.

2. Teachers "mostly" turn to applications around IRE and ARE strategies. Nevertheless with a big difference IRE strategy is used mostly by teachers. It can be resulted in like that since applied learning takes too much time and following it makes the work hard for them. This situation contradicts with generally nature of learning and scientific findings. Because, nearly all the scientists agree on the fact that permanent and effective learning is learning by doing (and it is verified by lots of researches (Sönmez, 2010; Gosselin, 2003; Carnell, 2005; NREL, 1982)). It is same for learning responsibilities. It takes attention in the literature that there are lots of scientists and the results of researches which state that taking responsibility happens by pulling one's weight (Clouder, 2009; Carnell, 2005; Barr & Tagg, 1995; Stockdale & Brockett, 2010).

On the other hand, it can be said that since the children between 6 and 11 is at concrete operational stage, ARE strategies should be given more places especially in primary schools. According to this, it can be suggested that teachers should take a formative education especially about the nature of responsibility and necessity and thus teachers can be encouraged to give more places to applied responsibility education. It can be useful to prepare activities which provide applied learning and introduce it to teachers around responsibility education.

3. IRE strategy is used by class teachers much more often rather than kindergarten teachers but ARE strategy is used by kindergarten teachers much more often rather than class teachers. It can result in like that because of students' differences about understanding what they read and write and reading and writing and differences about their ritual taking notes. This situation shows consistency with the literature about developmental features of children. However to lay a foundation of sense of responsibility and conscious is a common purpose of both kindergarten and primary schools. In literature gaining sense of responsibility is going around much more in moral education rather than in informative education (Barr ve Tagg, 1995; Yeşil, 2013; Gosselin, 2003). Because of this, it can be said that nature of moral education and its necessities should be taken into much more attention. In this case it can be suggested that both in kindergarten and in primary schools, beyond informing, it should give more places to the activities like that doing applied education by giving responsibility, being a model, utilizing from reinforcers and have them judge.

4. There is not a big difference between female and male teachers about frequency of using responsibility strategies. However either sub-factors or generally female teachers give much more places to application around responsibility education. According to this, rather than there is not a big difference, it can be said that female

teachers are much more sensitive about this. Due to the fact that female teachers are much more emotional than male teachers and they are afraid of the problems deriving from not being able to manage the class, they give much more importance to responsibility education than male teachers do.

5. Teachers' seniority causes an important difference on frequency of using application in IRE strategy. Applications in IRE factor is used much more by teachers having 22 and over year-old seniority than teachers having 1-7 year old or 8-14 year-old seniority. Therefore it can be said that as soon as their professional seniority increase, their frequency of using IRE strategy increase. It can be because of teachers that they don't have enough energy because of their seniority and because of that they cannot perform the necessities of applied education. That teachers having more professional seniority fall short of new teaching methods and techniques, teaching materials and testing-evaluation applications suggested in new curriculum and they couldn't understand the philosophy of curriculum may cause that they keep traditional teaching applications going. Whereas, the modern educational science researches and findings give point to the importance of students' involving actively in education process; learner centered applications such as self-regulation, self-evaluation, self-management and active participation and it suggest that teaching process should be organized according to such concepts and applications (Ramos & Anonuevo, 2011; Clouder, 2009; Coeckelbergh, 2006). Thus, the primary school curriculum carried into execution since 2005 is an activity centered curriculum build on these features (MEB, 2006). Therefore, it can be suggested that especially the teachers having more professional seniority should be subjected to in-service training about modern education approaches and applications and the responsibilities and proficiency that the new curriculum encumber to teachers.

On the other hand, rather than there is not any meaningful differentiation between them, the applications of ARE strategy are used at most by the teachers having 21 and over year-old seniority and at least by the teachers having 8-14 year old seniority. It takes attention that teachers having 8-14 year old seniority use ARE strategy more than the teachers having 1-7 year-old seniority. This can be interpreted that the applications of ARE strategy need to have experience. It can be said that it should be increased by giving applied education to teachers in pre-service process and as soon as they begin to work, it can contribute them for applying these.

6. While there is a meaningful and positive relation between teachers' professional seniority and their application frequency of responsibility education strategy from the view of IRE factor, there is not a meaningful relation from the general view of ARE factor and RESS. Therefore it can be said that as soon as teachers' professional seniority increase, their frequency of giving more places to IRE strategy increase. In other words while professional seniority increase, it directs teachers to use IRE strategy much more, there isn't seen a regular increase generally in frequency of giving more places to applied responsibility education and ARE factor. This situation can be interpreted that it confirms the explanations above.

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The examination of interest corners and materials in pre-school education institutions in Istanbul*

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Abstract

This study was conducted to determine the current condition of interest corners and materials used in these corners in pre-school education institutions in Istanbul. The research suits a scanning model which was performed via filling out a survey form created by researchers in 74 pre-school classes of 25 different schools in 12 districts of Istanbul. It was seen in the study, where frequency distribution and percentage calculations were used in statistical analysis, that although playing house, library and music corners were highly available, number of materials used in these corners weren't sufficient enough. Moreover, we observed that visual-audial, woodwork-joinery and computer corners were rarely used whereas water and sand corners weren't available in any of the classes. The study has shown that despite materials of art were the most common ones, art corners weren't the mostly seen corners in the classes. Temporary interest corners like jobs, new year, health and traffic were mostly available but tailoring and writing corners weren't available in any of the classes. The most materials observed were related to health, writing and traffic corners, whereas the least materials observed were related to new year and grocery corners.

Keywords: Pre-school Period, Interest Corners

1. INTRODUCTION

Education has been one of the main struggles of societies from the existence of human till today. The general goal of educational studies is to support the growing generation to adjust them to the society, age and world.

In pre-school education, which is the most critic period in a child's education, it is aimed to provide classroom environments to support the education of children, to motivate children to fulfil the activities and to contribute to the them to finish the activity successfully, as well as to help achieve goals like (1) ensuring physical, mental, emotional and social development and achieving basic behaviour; (2) taking responsibility and being tidy; (3) enabling the children with the opportunity to develop a personality, express him/herself, gain independence and self-control (MEB, 2006).

To simplify achieving these goals, pre-school education institutions need to have a stimulant environment. The stimulant environment mentioned here is provided by interest corners and materials which have to be present in every classroom. Interest corners which have a significant role in educational environments provide different learning experiences to the children. Maria Montessori states how important the environment created for the

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children is by saying “*Education is not achieved with the words a teacher tells to his/her students, but with time they spend in a physical and social environment*” (Önder, 2006).

Interest corners can be described as activity spots such as permanent playing house, blocks, art, science-nature, music, library-bookcase, table toys, puppets, computer, water and sand corners etc. and temporary new year, jobs, health, traffic corners etc. These are areas which should be designed apart from resting, sleeping and food areas (Demiriz, Ulutaş, Karadağ, 2011).

It is an undeniable fact that the diversity of materials in learning spots that need to be present in pre-school education institutions has a great impact on child development. Besides the contribution of interest corners in development areas, the presence of interest corners and diversity of materials is important for the encouragement of children to free play. To have children playing in unstructured environments with materials and other children they choose is especially important for them to gain autonomy and independence.

This study was conducted to determine the present state of interest corners and materials used in these corners in pre-school education institutions in Istanbul. It also has a consequence for creating awareness among pre-school teachers about the importance of interest corners and materials.

2. Method and research group

A survey model was used in the study. The study was conducted in 74 pre-school classes in 25 schools from Kadıköy, Üsküdar, Pendik, Ataşehir, Fatih, Maltepe, Kağıthane, Zeytinburnu, Avcılar, Beşiktaş, Ortaköy and Sultanbeyli districts of Istanbul.

2.1. Data collection tool

The survey form used in the study was prepared by 18 students studying at Marmara University Pre-School Teaching Research Project class and two lecturers in the 2011-2012 academic year. The survey form consists of temporary and permanent interest corners and materials used in these corners. The number of materials located in the corners is as follows: 68 in playing house, 29 in music, 26 in puppet, 34 in block, 24 in science-nature, 33 in art, 19 in water/sand, 11 in computer, 25 in table games, 23 in library/bookcase corners which are permanent corners, 24 in health, 18 in traffic, 20 in grocery, 46 in writing, 6 in jobs, 34 in woodwork/joinery, 19 in new year, 31 in tailoring and 15 in kızılây corners which are temporary corners.

The project was ended after a 10 week study with 22 interns under Teaching I class in the 2012-2013 academic year. After the interest corners were marked in the survey forms, data was collected by marking the materials available as “available (1-one)” and “unavailable (0-zero)”.

2.1.1. Data analysis

The frequency distribution and percentage calculations in the statistical analysis were calculated from data collected by researcher via survey forms available “1-one”, unavailable “0-zero”.

3. Results

Table 1. Percentage table of the current situation of interest corners in classes

Main Interest Corners	Available	Unavailable	Main Interest Corners	Available	Unavailable
	%	%		%	%
Playing House	84	16	Puppets	60	40
Block	76	24	Water and Sand	0	100
Art	28	72	Computer	16	84
Library-Bookcase	84	16	Music	84	16
Science-Nature	32	68	Visual/Audial	8	92
Table Games	48	52	Woodwork/Joinery	36	64

According to Table 1, the most present corners were Playing House, Library-Bookcase and Music (% 84), Block (% 76) and Puppet corners (% 60); where Visual-Audial (%8) and Computer (% 16) corners were the least present. The study didn't come across a water/sand corner.

Table 2. Percentage table of the current situation of temporary interest corners in classes

Temporary Interest Corners	Available	Unavailable	Temporary Interest Corners	Available	Unavailable
	%	%		%	%
New Year	20	80	Kızılay	8	92
Tailoring	0	100	Traffic	20	80
Jobs	24	76	Writing	0	100
Health	20	80	Grocery	4	96

According to Table 2, the most present corners were Jobs (% 24), New Year, Health and Traffic (% 20); whereas Tailoring and Writing corners weren't available.

Table 3. Frequency distribution and percentage table of the current situation of materials in main interest corners in classes

Main Interest Corners	Available		Unavailable	
	f	%	f	%
Playing House Corner	2186	42.78	2923	57.22
Block Corner	437	21.78	1569	78.22
Art Corner	1474	54	1256	46
Library/Bookcase Corner	736	43.24	966	56.75
Science/Nature Corner	1153	28.46	2897	72.34
Table Games Corner	873	47.25	975	52.75
Puppet Corner	284	16.30	1458	83.70
Water & Sand Corner	378	27.63	990	72.37
Computer Corner	170	21.80	610	79.20
Music Corner	721	33.59	1425	66.41
Visual-Audial Corner	254	4.79	1590	95.21
Woodwork/Joinery Corner	778	10.51	1738	99.49

According to Table 3, corners with the highest number of materials were Art (% 54), Table Games (% 47.25), Library/Bookcase (% 43.24) and Playing House (% 42.78) corners; whereas corners with the least number of materials were Visual/Audial (% 10.51) and Woodwork/Joinery (% 16.30) corners.

Table 4. Frequency distribution and percentage table of the current situation of materials in temporary interest corners in classes

Temporary Interest Corners	Available	Unavailable	Available	Unavailable
	f	%	f	%
New Year	117	8.32	1289	91.68
Tailoring	438	19.54	1804	80.46
Jobs	92	20.72	352	78.28
Health	472	27.69	1232	72.31
Kızılay	179	16.57	901	83.43
Traffic	304	23.13	1010	76.87
Writing	798	23.76	2560	76.24
Grocery	195	13.35	1265	86.65

According to Table 4, corners with the highest number of materials in temporary interest corners were Health (% 27.69), Writing (% 23.76) and Traffic (% 23.13); whereas corners with the least number of materials were New Year (% 8.32) and Grocery (% 13.35) corners.

4. Discussion

It is expected for the playing house corner to have a current rate of %84 in classrooms since it is one of the most important permanent corners. The reason why pre-school teachers use this corner in their classrooms is because it contributes to the children's social-emotional development, it teaches them pre-school gender roles, it establishes a connection with their homes and it strengthens the home-family concept (Demiriz, Ulutaş, Karadağ, 2011). This is also a corner where dramatic game play is emphasised and where communication is created by language whether the child is playing by him/herself or with his/her friends (Kamaraj, 1996). It is important both because the teachers use it in their classrooms and it is one of the most preferred corners in the classroom. The study shows that materials related to this corner are %42.78 available.

It is also expected for the library/bookcase corners to have a rate of %84 as it is one of the main interest corners like playing house corners. Reinforcing the children's existing knowledge, providing book-related experiences, creating emotions and attitudes on children for the coming years about reading, enhancing the love for books and rising an interest for literature can be given among the reasons why teachers create these corners in their classrooms (Demiriz, Ulutaş, Karadağ, 2011). The study shows that materials used in this corner are %43.24 available. When we take into consideration that the study was conducted in fall, we should be aware that the number and type of materials need to be renewed in spring. As children need books as much as they need friends, having books that cause interest and are suitable to their age and cognitive level will increase the level of interest towards this corner.

As the music corner is a main interest corner just like playing house corner and library/bookcase corner, its %84 availability can be predicted. The reason why pre-school teachers use this corner in their classrooms is because children have rhythm in their nature (they hum some tune at very small ages), it provides rhythm and movement coordination (listening to music, clapping hands, tapping feet while listening) and it also enhances art skills (Kamaraj 1996; Tok, 2012). The study shows that materials related to this corner are %33.59 available.

When compared to playing house and library/bookcase corners with the same rate of availability (%84), it is seen that the number of materials aren't as high as the others. It seems like this is due to the lack of music knowledge level of teachers.

As the block corner is a main interest corner just like playing house corner, library/bookcase corner and music corner, its %76 availability can be predicted. The reason why pre-school teachers use this corner in their classrooms is because it supports small and big motor muscles in children, it provides a connection between cause and effect and it is an activity that supports creativity (Demiriz, Ulutaş, Karadağ, 2011). The study shows that materials related to this corner are %21.78 available. When compared to playing house and library/bookcase corners with the same rate of availability (%76), it is seen that the number of materials aren't as high as the others. It seems like this is due to the lack material diversity.

As the puppet corner is a main interest corner just like playing house corner, library/bookcase corner, music corner and block corner, its %60 availability can be explained. The reason why pre-school teachers use this corner in their classrooms is because it uncovers the creativity of the children, it supports mental and language development and it also reveals the children's emotions (Oğuzkan, Tezcan, Tür, Demiral, 1997). The study shows that materials related to this corner are %16.30 available. When compared to playing house and library/bookcase corners with the same rate of availability (%60), it is seen that the number of materials aren't as high as the others. It seems like this is due to the lack material diversity.

The study has shown that visual/audial corners (%8), woodwork/joinery corners (%10.5) and computer corners (%16) were seen less and water/sand corner wasn't seen in any of the included classrooms. The number of materials is also not sufficient due to lack of space and economical reasons.

Water and sand corners are one of the most popular and educational corners for pre-school children due to its relaxing, flowing and calming nature. This corner is irrevocable for both the children's emotional and social development. Children also have great fun playing in this corner (Aktaş Arnas, 2002). The reason why this corner wasn't available in any of the visited classrooms is predicted because of lack of sufficient space and the need of an open air space which is much more suitable for this corner.

The study has shown that despite with the highest number of materials, the availability of art corners was less than expected (%28). It is thought that the reason why pre-school teachers don't prepare a special corner for art studies is because they think of it as an activity to be carried out on a desk.

The reason why science/nature corners have an availability of % 28.46 is the lack of sufficient space in classrooms and the economical situations of the institutions but it can be supported by activities carried out in open air.

The research has shown that among temporary interest corners the most available one were jobs (%24), new year, health and traffic (%20); whereas tailoring and writing corners weren't available in any of the classrooms. Temporary interest corners are corners implemented for a specific period of time according to the field of interest of the children to reach specific goals and achieve desired behaviours (Demiriz, Ulutaş, Karadağ, 2011).

In the study among temporary interest corners, health corners (%27.69), writing corners (%23.76), traffic corners (23.13) were with the highest numbers of materials; whereas new year (%8.32) and grocery (%13.35) corners had the least. As these corners aren't permanent as main corners, the low numbers of availability can be perceived as natural. Interest corners should be prepared as special activity spaces of a classroom or school environment in pre-school education institutions and they should be implemented apart from resting, sleeping and food areas. Children should have the opportunity to choose independently and every child should benefit from these corners in turns (Demiriz, Ulutaş, Karadağ, 2011).

The educator should prepare all of the main interest corners at the same time. But in situations where space isn't enough or the number of children is high, the corners can be prepared in succession. The teacher can

decide which corner to implement when, according to the acquisitions s/he wants the children to achieve and the tool s/he has chosen. However the teacher has to change the places of the corners from time to time to attract the children's attention. To attract the attention it is possible to change old materials with new ones and to change material with ones from another classroom (MEGEP, 2011).

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4th International Conference on New Horizons in Education

The faculty of restoration, university of pardubice – national heritage in specialists' hands

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Abstract

The paper deals with the introduction of the Faculty of Restoration, the smallest faculty of the seven faculties belonging to the University of Pardubice. The Faculty offers four study courses on Bachelor level and two study courses on Master level.

The Faculty is involved in many projects within the Czech Republic, but also co-operates in a lot of international ones. It offers places for foreign students at the Faculty or sending the students either for a kind of study or practical fellowship. The Faculty also organizes courses for foreign students and specialists in restoration and invites lecturers from abroad.

Keywords: restoration, conservation, studio, department, Bachelor study course, Master study course, international projects, interdisciplinary co-operation, cultural heritage preservation

INTRODUCTION

The Faculty of Restoration, Litomyšl is located in the Czech Republic, about 140 km south-east of Prague. It belongs to the University of Pardubice, where it is the smallest faculty out of seven faculties of the University Pardubice. The Faculty of Restoration has only about 100 students, but its importance crosses the boundaries of the region and even of the country, as there are such branches of study that are not offered at any other university in the Czech Republic or within Europe.

From the Institute of Restoration to the Faculty within University

The fact that the Faculty of Restoration is situated in Litomyšl is not just a coincidence; the Town of Litomyšl is famous for its renaissance castle which was included in the UNESCO list in 1999; apart from that there are a lot of other places of interest, such as the Baroque Piaristic church or burgher houses on the square. Unfortunately, not all of the buildings were looked after with the greatest care, which was also true about a house called "Portmoneum" with paintings on the walls by Josef Váchal. The house was bought by a private publishing house who called restorers – experts to restore the murals. That was the time when the idea to set up a school of

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restoration was born as it was clear that there would be many more buildings and other works of art which would require specialists' care. On the other hand, there were not sufficient numbers of restorers capable of dealing with the problems.

Thanks to the support of the Municipal authorities and the National Institute of Conservation, in 1993 the Institute of Restoration, providing further education, could be founded. Later on after a few steps of transformation into a college, it became part of the University of Pardubice as its 7th faculty in 2005.

2. ORGANIZATIONAL STRUCTURE

2.1 Study courses and fields of studies

The Faculty offers four study courses on the Bachelor level and two study courses on the Master level. In the Bachelor study courses students can study Restoration and Conservation of **Stone and Related Materials**, Restoration and Conservation of **Wall Painting and Sgraffito**, Restoration and Conservation of **Paper, Bookbinding and Documents**, Restoration and Conservation of **Artworks on Paper and Related Materials**, while in the Master study courses they can gain education in Restoration and Conservation of **Wall Painting, Sculptures and Architectural Surfaces** and Restoration and Conservation of **Works of Written Culture**.

2.2 Curriculum

To become an erudite restorer, the students have to know what historical background the objects come from, so it is essential to be educated in history and art history. At the same time it is vital to have good knowledge of natural sciences to be able to understand the material nature of historical materials and techniques, their main damage phenomena and corrosion mechanisms as well as the scientific basics of nature modern conservation technologies and their impact on works of art. Last but not least they must have artistic skills. Therefore, the concept of education has three main pillars – each of the segments of the education is provided by a different department or studio – the Department of Humanities, the Department of Chemical Technologies and the Studio of Fine Art Training.

All the branches focus on training of the students within their specialization, but at the same time they equip them with other essential skills and knowledge such as History of Art, Philosophy, Aesthetics, History, Restoration documentation seminar, Law in monument care provided by the Department of Humanities, natural science subjects like Chemistry, Laboratory practice, Basics of organic and inorganic binding media, Basics of pigments, Analytical and diagnostic methods in survey of works of art and Conservation technology and artistic training (Drawing course, Nude painting, Anatomy for artists, Photography). All the students are also obliged to study English and Latin for some semesters of their studies and they can add other foreign languages such as German, Italian and Spanish.

3. PROJECTS

The Faculty keeps up with the latest trends of modern education, therefore it is involved in many projects within the Czech Republic, but also co-operates in a lot of international ones. The students of the Faculty are always integrated into these scientific projects.

3.1 EU projects

3.1.1 STONECORE

Outstanding results have been achieved in the European project **STONECORE** – "Stone Conservation for the Refurbishment of Buildings" (2008 – 2011). The main goal of the project was to develop and apply

nano-materials for the refurbishment of buildings and the restoration of sculptured artwork. In all cases materials which are compatible with the components originally used during construction are required for refurbishment. This is of essential importance for the consolidation of natural stone such as limestone, marble or sandstone as well as for mortar and plaster. However, the materials and components currently available did not fulfil those demands in all cases.

Six small and medium enterprises, four universities, one public research organization and one governmental organization from seven countries joined together in order to find a new approach for refurbishment of natural and artificial stone. The project, which started in September 2008, progressed from investigations in the laboratory and small scale applications on trial areas, to the use of the materials that had been developed on selected objects in the field.

As a result of the STONECORE programme, several nanomaterial products for stone conservation and restoration have been developed.

STONECORE restoration reference objects by country included:

Poland: Torun, The Tower of St. John`s Church

The Czech Republic.: The Church of Santa Barbara, Baroque statue of an angel from Kutna Hora, former convent Rosa Coeli in Dolní Kounice in South Moravia

Greece: The Ancient Theatre of Megalopolis, Fortress Lilaia, The Ancient Theatre of Sikyon

Austria: Marble sculpture from the 18th century, mud bricks from India

Germany: The Church of Hochelten; The Castle of Leuben, The Castle of Dahlen; Xanthen and AachenCathedrals

Recently STONECORE has been accepted as a finalist at the Euro Nano Forum 2013 in the top 11 projects within the 7th Framework EU Programme.

3.1.2 NANOFORART

The ongoing research international project **NANOFORART** – "Nano-materials for the conservation and preservation of movable and immovable artworks" (2009 – 2014) within the 7th Framework EU Programme joins 14 partners with the University of Florence, Italy as the coordinator and is also focused on nanotechnologies. The main objective of the project is the development and experimentation of new nano-materials for the conservation and preservation of movable and immovable artworks. There are 15 institutions from Italy, Denmark, Spain, Great Britain, Germany, France, Slovenia, Mexico and the Czech Republic involved in the project.

The main challenge of NANOFORART is to combine sophisticated functional materials resulting from the recent developments in nano-science technology with innovative techniques in the restoration and preventive conservation of artworks. The research activity is focused on the development of manageable methodologies, based on nanosized structures and with a low environmental impact.

The second part of the project is also of great importance, as the technology will be handed over to small and medium enterprises that will play a significant role in the standardization of applicative protocols, in the up-scale and commercialization of the technology and in the evaluation of the eco-toxicity of the nano-materials. In the final phase the attention will turn to the end-users – e.g. the National Museum of Anthropology and History of Mexico City and the National Museum of Denmark, whose task will be to validate the technology and the methods developed in the first part of the project, and provide training activities and distribution of the developed techniques.

3.1.3 Other EU projects

Some of other projects are listed together with their descriptions:

ROCEM – "Roman Cement to Restore Built Heritage Effectively" (2003 – 2006), whose objective is to re-establish manufacture and use of Roman cements, which were key materials to decorate facades of buildings in the 19th and early 20th centuries in Europe. Unfortunately, they were no longer available on the market. According to the fundamental principle of modern conservation – that the historic buildings should be repaired with the use of materials that are compatible with the original historic substance – could not be met when restoring this important built heritage. The project included studying historic mortars, selecting appropriate raw materials, optimising cement stone calcinations parameters, carrying out a workshop and conservation trials. Results were to be disseminated to material producers and end-users of the technology – restoration workers and authorities.

ROCARE – "Roman Cements for Architectural Restoration to New High Standards" (2009 – 2012) developed the pieces of knowledge gained during the project ROCEM, it was focused on the improvement of the Roman cement technology. The aim was to combine existing knowledge of this historically well established binder with modern aspects of its manufacture, use and marketing.

NAMO – "Nabatean Mortars – Technology and Application" (2003 – 2005) was a project in which mortars and building technologies used in the Nabatean period (Nabatean kingdom) in Jordan and Syria were first investigated. There were two reference objects - Temple Qasr al Bint in Petra, Jordan and Great Cathedral in Bosra, Syria. There were four participating countries in the project - Austria, Syria, Jordan and the Czech Republic. After the investigation of historic materials and of the building situation, the project participants concentrated on defining and testing of possible repair materials and finally the results of the project were presented to the public.

3.2 Projects within the Czech Republic

Low-viscosity inorganic binders and their application (2011 – 2014) – a project in the collaboration with the Research Institute of Inorganic Chemistry Ltd submitted to the Ministry of Industry and Trade of the Czech Republic. In the period between 2011 and 2014 researchers will be trying to relate the new information concerning the composition and the way of preparation of inorganic binders from the group of so called "geopolymers" to their characteristics in order to achieve such a quality that will enable their application in three different fields – special heat resistant coatings production, production of glues resistant to high temperatures and materials used for historic monuments preservation.

Study of several conservation procedures for improvement of monument care systems (2012 – 2015)

– a project within the Programme of applied research and development of national and cultural identity funded by the Ministry of Culture of the Czech Republic. The main objective is to create conservation procedures and certified methodology to be able to solve the problems of sculpture and building conservation.

VEPA – Science for paper artefacts (2012 – 2015) – an EU and Ministry of Education project – the aim of the project is testing materials and methods for consolidation of paint layer on the paper support. The researchers will focus on the development of already existing knowledge in the field of mechanisms of paint layer degradation on paper support and the impact of individual conservation interventions (disinfection, neutralization etc.) on the stability of paper support with a paint layer.

4. Other activities

4.1 Study stays, fellowships, international co-operation

Another way how to contribute to the international co-operation is offering places for foreign students at our Faculty or sending our students either for a kind of study or practical fellowship. Our students have been accepted at the Norway National Museum of Photography – Preus Museum in Horten, National Central Library in Florence, Studio Gurtner in Vienna, Dipl. cons. Christian Binder's Studio in Graz, Universidade Nova de Lisboa, University of Arts "George Enescu" Iași, Accademia di Belle Arti G.B. Cignaroli Verona, Hochschule für Bildende Kunst Dresden.

Bachelor or Master graduates have been sent to European institutions or restorers' studios for short-term study stays during which they worked on their thesis and solved science-research tasks (Switzerland, Great Britain and Portugal). The Faculty of Restoration has hosted three foreign students in the past two years – from Great Britain, Poland and Japan.

The Faculty also organizes courses for foreign students and specialists in restoration and on the other hand it invites lecturers from abroad (Italy, France and Germany) to teach our students. Just as one example of these activities the regular training courses for restorers of the Republic of Iraq can be mentioned. These courses are currently focused on paper and art work on paper conservation.

4.2 Presentation of the Faculty to the public

Furthermore, the Faculty contributes to educating general public by organizing seminars and workshops where the participants can learn how to look after the artefacts they own or what processes are involved to preserve them. Just to illustrate there are some topics seminars "How to care for old books and graphics", "Clay as a traditional building material", "How to care for small monuments made of wood" etc.

The Faculty also organizes its own exhibitions and presentations of the individual studios. The Faculty has just celebrated the 20th anniversary of the study of restoration in Litomyšl. On the occasion of such an event, an international conference was held. The topic of the conference was "Interdisciplinarity in the Care for Cultural Heritage". Some of the contributions were given by specialist from Austria (Austrian Federal Office for the Care of Monuments, University of applied Arts) and Germany (Dresden Academy of Fine Arts).

5. CONCLUSION

Even if the Faculty of Restoration has currently only about 100 students, it co-operates with the most significant institutions engaged in the cultural heritage preservation, such as the National Institute of

Conservation, the National Archive, the National Library of the Czech Republic, the Scientific Library in Olomouc and other institutions. It is an integral part of the University of Pardubice and adds to it in a way which corresponds with the idea everybody should be aware of: the cultural heritage is one of the most precious legacies we have and it is our task to ensure the monuments and artefacts will be preserved for the future generations.

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4th International Conference on New Horizons in Education

The formation in moral values in high school education by means of the transversal axis and the integrated curriculum

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Abstract

This document summarizes the results of a research whose objective was to express some considerations about the formation in values at the mid-superior level. Some proposals about the topic such as Jean Piaget's and Kohlberg's are included extrapolating them in their application to the current times. The design of the investigation was based on a documental analysis and goes from the particular to the general, analyzing the situation in Mexico and the comments made by some international organisms in the field of education about the topic of formation in values in high school education, including also the research results obtained in Mexico. Among the principal discoveries highlighted we include the suggestion to inspect the curriculum in the high school level and to consider the inclusion of formation in values by means of the transversal axis and the integrated curriculum.

Keywords: Moral values, Kohlberg, Piaget, integrated curriculum, transversal axis.

1. INTRODUCTION

This research describes theoretical considerations as the basis for the formation in moral values that allow us to project how these courses could succeed in a teenager (11 to 18 years old) at the mid-superior level adopting behaviors and attitudes oriented towards the common good. There are diverse theories that support the formation in values through psychological and sociological paradigms, among others, and that establish the influence of the formation in values in the development of a human being, and their influence in social relationships. The psychological theories of education upon which we focus are those of Lawrence Kohlberg (Kohlberg, Power and Higgins, 1997), who recaptures Jean Piaget's theory (Piaget et al., 1960) in regards to moral development. This theory defines and determines the factors that shape the contribution of education to answer society's demands of analysis of the current trends of education in universities. The objective of this study is to present the stadia upon which Piaget based his theory, and Kohlberg's dilemmas regarding moral development, and to carry out an analysis of both projecting the education in values nowadays.

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2. Psychological theories of education (Piaget-Kohlberg)

Among the most transcendental psychological theories of education in values that were developed in the thirties and towards the end of the fifties, as well as in the sixties, we find the theories of Piaget and Kohlberg about the moral education of the child, covering both childhood and the teenage years.

Jean Piaget

Piaget's theory was founded upon the method of data inquiry to know the evolution of thought, and his investigation was based principally on the knowledge of skill and logical reasoning development, from childhood through the adolescent years, with a systematic focus, to analyze the logical structure of reasoning in children. His methodology contemplated letting the child talk freely (listening to him) as well as observation, while relying on informal tests, and proving hypotheses. However, advanced mental structures were validated through interviews that had their basis mainly on chemistry and physics.

Reflecting upon Piaget's theory, we must mention that an individual learns what he is taught by others; he learns from others' mistakes; he learns from the person who is teaching him...Who teaches him? Society, his family, those around him. How do we evaluate whether what he has learned is correct? How do we ascertain that what he learned was adequately interpreted? Nevertheless, the young person learns and interprets and searches for his own identity; he is building himself. The young person is presented with an offer and choices that gradually form the person. There are several factors that influence his choice, not only the moral judgment factors, but also the genetic, social, psychological and biological factors. The genetic makeup allows us to develop, communicate; it forms the human being. Piaget's theory of cognitive development for moral education set the bases to explain children's education by mentioning concepts that are currently known as values. This theory presents moral education from three viewpoints: the first differentiating between free and subjected individuals; in the case of subjected individuals, coercion, threats and abuse of power will be employed so that the child do the adult's bidding. In the case of free individuals as the desired result of moral education, the cooperation model will be used, to invite the child to follow rules by imitation in first instance and later by conviction. The second viewpoint is the pedagogical technique to be used in the formation of the value, which can be passive or active. The third viewpoint is the procedure used for moral education as a function of the moral domain upon examination.

In the cases mentioned before, it can be observed that moral education is represented by the passive model characterized by subjection and the active model characterized by the model of cooperation and conviction. In Piaget's theory of the moral education of the child mentions four stadia or phases upon which this education is given: the formation of values. Education is the means through which human societies can conserve, transmit, develop and build upon the set of values that make up the human environment (Piaget et al., 1960). In other words, education is the best instrument to convey values to a person and therefore to society, through the axiological focus, in a system of values that is included in the design of curriculum. In regards to this, Piaget recognizes the following four stadia (stages) for education. The first stadium is the egocentric reasoning that is developed from 3 to 5 years old, in which the reason to be good is receiving presents. The second stadium is from five to seven years old, corresponding to the unquestioned obedience, in which the right judgment is what I am

being told by my parents and teachers, with the motivation to avoid problems. The third stadium, that of loyalty, starts towards the end of the sixth year and culminates at ten years of age, during which the right judgment is that which benefits me, being good with those who are good with me, and self-interest as the reason for being good. The fourth stadium starts approximately at nine years old and culminates at sixteen, where the child assumes some responsibilities with the system to which he belongs and his reason for being good is the interpersonal and social approbation and his self-esteem. For all this it is necessary that the child reflect to assume his responsibility and that he decide to adopt positive attitudes, which have to be valued and translated into behaviors that let him feel their congruency with the education in moral values that he has received. It is necessary to reflect upon each one of these stadia, principally at the chronological age of the child, and project that to the practical arena. At these ages children act governed principally by behavior rules that within an educational institution are reflected in a rulebook. Depending upon the severity of the inappropriate act that violates morality, the range of penalizations goes from an admonition to being thrown out of the educational institution. This is why children behave mostly because of regulations and not because of conviction. Moral maturity must be acquired by conviction after having been translated and adopted by the individual once the practical order of doing permeates through to the practical order of being.

Lawrence Kohlberg

He wrote his Ph.D. dissertation in 1978 on the moral judgment of children extending Piaget's investigation. He based his theory on moral dilemmas and divided it into six stages of moral judgment. He explains the cognitive-evolutionary development of moralization and tries to explain (Kohlberg et al., 1997): a) how the stages develop from the interaction between the individual and his environment, b) how an individual passes from one stage to the next, c) Why some individuals develop more than others, d) what is the relationship between those cognitive-based structures and the moral feelings and actions of an individual.

The first level, known as pre-conventional is comprised of two stages. The first is the heteronomous moral where the right action consists of not violating the rules, which are upheld by punishment, and obedience exists to avoid damage to persons and goods. The child's motives to do this are to avoid punishment and the power of authorities. This is an egocentric attitude because it does not consider others' interests and does not recognize them either, which originates a confusion in the perspective of an external authority and the child's own authority. The second stage, individualism or instrumental purpose and interchange, is characterized by an individual following the rules because it suits his interests and needs. Proposing a fair interchange, his motives are his interests and his awareness that socially speaking, everybody pursues his own interests, which in fact means he does recognize others' interests. In the conventional level two stages are included: one which is called relationships, mutual interpersonal expectations and interpersonal conformity. At this stage the individual tries to be at another person's level, and to fulfill the expectations that are held about him. His motivations to do so are to be good in his own eyes and others' eyes; he also has a social awareness of feelings, agreements and shared expectations that have primacy over individual interests. At the stage of social system and awareness, the teenager fulfills the appointed duties to contribute with the institution's functioning. In the level called post-conventional or of principles we can find stages five and six. Stage five, named social contract or social usefulness and individual rights, the right judgment is having the awareness that others have a diverse variety of values and opinions which are relative to the group. The motivations to be good are duty, commitment and the desire to fulfill laws and social, familiar and work-related duties. Socially, he is aware of the values and rights established by contracts and he integrates objectively moral and legal points of view. In the stage six of universal ethical principles, the young person seeks to abide by ethical principles that he has chosen. Laws or social

agreements tend to be valid because they are based on such principles. His motivations to abide by them are their validity and his personal commitment to them. The social perspective is that of moral recognition.

As has been mentioned before, we must not forget that the moral value is adopted or learned by the young person in a reference framework that must be qualified axiologically to determine that those acts and those moral values are in pursuit of a licit end. Philosophically speaking, the ultimate end of man within evolutionary parameters is towards good. Kohlberg's theory of moral development uses the results of philosophical ethics to describe the cognitive structures that are found at the foundation of moral judgments formulated on principles. As Kohlberg studied it in its stages and the reasons to be good, we must not wait until 16 years of age or more to determine the stages of moral development since self-sufficiency can be achieved from 3 to 5 years of age and in each of the individual's life stages. The development of values must arise within the family unit, in the social nucleus where a human being develops. The main problem is to determine the validity of "the moral viewpoint" so that the development of the moral judgment have results directed to the common good and allow for the evolution and not the destruction of mankind. According to this, Kohlberg's theory is based on fundamental philosophical assumptions that imply that a true moral reasoning must contain features such as impartiality, universality, reversibility and prescription (Habermas, 1987).

It must be pointed out that Piaget and Kohlberg's theories on constructive learning describe the cognitive structures through which learning processes ensue. This relationship has a reference back in the stage of moral judgment development in three aspects which Kohlberg tries to expound on the moral taking into account cognitive ethics: cognitivism, universalism and formalism. In the moral stages indicated by Kohlberg the main ones are post-conventional order and of principles where moral decisions are generated from rights, values and principles that are (or could be) admitted by all persons that comprise or create a society with fair and beneficial practices. In the stage of prior rights and social contract or social usefulness that antecedes the stage of universal ethical principles it is the previous learning which must activate the decision to act. That is the reason for delimitating moral tasks in this stage through dilemmas that will be adopted and acted upon by the individuals. It is necessary that educational institutions acknowledge that education must convey and create values that will allow the individual to be a part of a free and harmonious society, so that he can lead his life in agreement with the integrity of each one of the persons that form part of it. Once these institutions acknowledge so, they will create an educational system that can permeate in the formation of values, in the practical order of doing, for each individual's own being. Why should the education in values be emphasized? Because society demands that people act pursuant to our own evolution towards a being and a society without violence, in the search of the spiritual light in this material world. Once the need for the formation in values in education has been recognized, we must analyze what is the ideal way to accomplish this objective. Education has acknowledged that the formation in values is necessary and to this end the educational institutions have based their philosophy, mission and vision or objectives on moral values.

3. Values in education

Most organizations have their foundations on values through their own philosophy, and their values can be observed within their vision or mission. The persons that execute the organization's plan must commune with the organization's values. The education in values is a topic that has captured the attention of specialists in education

in the last years as one of the possible ways to solve social problems that are broadcast in different mass media, such as manifestations of violence, not only towards women (even within the classroom arena), but also racial discrimination, family violence, frauds and others that prevent a moral evolution and a social coexistence directed to the common good. A premise to eradicate or diminish these symptoms of societal disease is through education, forming values within the society through the educational institutions. This controversial topic is undoubtedly important and there are currently studies that indicate the advisability of forming in values through education.

It is necessary to conceptualize values from the philosophical paradigm in virtue of the existence of diverse meanings but in education values must be defined as a set of behaviors that make up the way of living of the individual and that have a meaning and an appreciation (a value) to fulfill them, and that to be directed towards social equilibrium must be applied to the common good. To comprehend this concept, we will refer to a parable that situates us at the center of the problem of the conceptualization of values since this term has different and multiple meanings and derives into the expression “education in values,” without any rules for its use neither in common day language nor in philosophy nor in any other science. *“Once upon a time a man was walking through the desert. He heard a voice that told him: pick up some pebbles, put them in your pocket and tomorrow you will feel both sad and happy. That man obeyed, he bent over, picked up a handful of pebbles and put them in his pocket. The next morning he saw that the pebbles had turned into diamonds, rubies and emeralds. And he felt happy and sad. Happy for having picked up the pebbles and sad for not having picked up more. The same thing is true of education”* (William Cunningham, based on a Bible passage, Job 21-25).

The previous parable places us at the beginning in the order of the value given to things by the individual and when this value makes no sense for him, he doesn't see it as a value. (This is the way of behaving of some persons in several situations, such as apathy, indifference, being upset, etc., which makes their behavior contrary to moral). When an individual can observe that pebbles have been transformed, he regrets it and wishes he had taken more since these would have a value; the man is saddened for when he sees them transformed, now they have a value for him, although this person sees this value as an economic value. However, the value to which I am referring is not a mercantilist or economic value (understood as the value that substitutes a material good for another material good; that is the reason why some students choose a major pursuing an economic value, without any relationship to a life plan that includes self-fulfillment through family, society, which is the ultimate end of mankind). Many individuals define themselves by what they do, by what they value and by certain social relationships (social status) but in the philanthropic sense this does not constitute an element for the individual preservation and evolution (what we authors call the spirit of education) thus losing the meaning of education.

For Jerez (1997) values in education are expressed as normative goods of moral orientation closely linked to the individual and social consciences and are the individual manifestation expressed socially, through the feelings, verbalized and congruent with actions. To encourage valuable or good attitudes it is imperative to do it through values, task undoubtedly associated with an educational act that considers education of personality, of character, of sensibility and is differentiated from the conveyance of knowledge and the intellectual instruction. From all this it can be deduced that values and education are inseparable terms since education is involved in the formation of the individual. Education cannot be conceived in the absence of a conception of the world and of life.

What type of value are we referencing? We will quote some considerations in this regard: When value is discussed “*a quality or perfection of reality related to the human functions and capacities*” (Pereira, 1997), we are directed to a reflection upon the ends of education in human development, in love and in wisdom. Garza (2000) mentions several authors that link education with values, such as Plato who considered that education consists in supplying body and soul with all the perfection and beauty they can muster. Bertrand Russell established that the four objectives of education are vitality, intellectuality, sensibility and value. Pestalozzi stated that true education leads to perfection, grace and the fullness of human capacities. Justo Sierra Méndez indicated that the development of the personality is based on moral, intellectual, physical and aesthetic education. In axiology, the study of values needs of a consignee so that a value can exist. Nietzsche indicates this when he speaks about the need of transmutation of values so that a new human culture can arise and he gave an important impetus to the study of values when he interpreted them as acts of preference. This implies an intellectual development so that the individual can discern and refer and carry out any act. This act, from an epistemological paradigm, presupposes three dimensions: the conscience of the value, the classification of values, and the life experience of values. In Plato’s dialogues, Aristotle indicates the four governing values: Prudence, Justice, Strength and Temperance. For Russell, the fundamental values are Justice, Decency and Morality. For Scheler, values are classified as Sensitive, Vital, Spiritual and Religious. As for life experience, values are personally preferred or chosen; churches have a great influence on that.

Moral values are universally accepted and are those that are sufficiently firm and acceptable beyond any particular person’s circumstances and beliefs, because their observance is deeply desirable for every human being in all time and place, for example: the protection of the environment, respect, love, mercy, solidarity, equality, or the values expressed in the universal declarations for children, for women, of human rights, in all of which are recognized the virtues of attitudes in facts, situations, circumstances or concepts referring to human development. Many values are contemplated within the legal framework of society such as constitutional documents, regulations and formal declarations of international organisms.

4. The universe of values.

Benito Juárez based his motto “Between individuals and between nations, the respect for the rights of others is peace” on a moral value that is respect, and became immortal when he founded law on values. National values are promoted by the State through educational processes, attempting to forge a national identity, with the will of the individuals to love and care for a territory, weather, race, language, institutions and other cultural goods that are common to the inhabitants of a shared space with a series of historical happenings, traditions, uses, customs, religion, etc. In Mexico, values express the profile of a Mexican citizen, as a result of a cultural context and an ever changing concept of the nation; the educational challenge lies in including, promoting and establishing them as part of life, that is, to live them. (How can we conceive then, that some curriculums have included theoretical subjects of social science, ethics, etc., if they are not applicable and provable?)

Education in all societies is one of the “*the main motors of development and has as one of its functions to make it possible for man to thoroughly direct his own development*” (Delors, 1996). In this context we attempt to mold attitudes based on moral values and endeavor to inspire superior spirits so that individual can fulfill ideals that are essentially human such as: assistance, service, kindness, fulfillment, mercy, piety, solidarity, helpfulness, union, work ethic, equality, justice. In view of these needs, educational competencies, reading and the magisterial labor have an effect on human development.

The concern at the international level is centered principally upon events such as when in the news atrocities, violence, power struggles can be observed, including also genocide, suicides, attacks upon people unknown to individuals, national hatred, international hatred, terrorism and countless data that show we must take drastic measures in the formation of moral values that will allow for the eradication of those acts that only lead to degradation and the extermination of society. If each one of the persons that have perpetrated immoral acts had been educated in values they would have not committed those inhuman acts. But what happens? That many persons that have perpetrated acts against morals such as corruption, fraud and countless ill-disposed acts have been part of an education in values. Then, what is at fault? One of the main reasons is that the education in values has been founded on and has emphasized the education in values at the primary and secondary levels, but there has been no proposal for education in values at the mid-superior level. We intend to promote the acquisition, the enrichment, the dissemination of goods and values of the Mexican culture and its adaptation to universal ones. Additionally, from the international perspective, know and practice democracy as a way of life; that is, as a value since the way of thinking about government was a central concern in the agenda of educational policies during the decade of 1990. Thus, in 1998, this was the central theme of the Ibero-American Conference on Education held in Sintra, Portugal (Organization of Ibero-American States, 1998) and has been kept in the agenda ever since.

The countries in the region approach the problem of the quality in education stressing sometimes the development of the necessary raw materials -- curricular changes, infrastructure development and equipment, better formation of teachers—and at other times, less frequently, in the establishment of goals related to national and international indicators of educational performance. This is one of the themes on which precise goals are set for higher education on the basis of the Organization of Ibero-American States' Report "Educational Goals 2021, The Education We Want for the Bicentennial Generation" (Organization of Ibero-American States, 2010). This Organization has designed a program for the education in values and citizenship indicating that it is necessary to promote the participation in the school environment and to promote a satisfactory climate that helps the students live together and be tolerant and practice solidarity. To achieve this, it is necessary to promote innovations and find strategies that are attractive for students and allow them to live with satisfaction in the exercise of values. From this perspective, the education in arts and sports may become important instruments for the education in values, the knowledge of others, the respect of differences and for teamwork, all of this through goals, strategies and lines of action on education for values and responsible citizenship. As has been stated by UNESCO, 1998, and diverse other actors, *"higher education is a public good, one of the fundamental pillars of human rights, democracy, sustainable development and peace; to strengthen it is our obligation and our commitment."*

5. The transversal axis and the integrated curriculum

It is evident that the foundation of education in the formation of values must be studied and analyzed to determine the need of incorporating values in education through the transversal axis. *"...The formation in values constitutes a pedagogical problem that is only understood from the psychological analysis of the nature of value in its regulating function of human action. The new curricular models are usually based on their 'transversality' or transversal axes that are included in the curriculums to fulfill specific objectives of supplying elements for the transformation of education. Transversal axes allow for the establishment of an articulation between the education based on the disciplines of knowledge, the themes and courses with the courses of higher education to form integrated human beings."* (Botero, 2008). One of the instruments through which values in higher education

can be included is the transversal axis, which can guarantee the formation of persons committed to society, well-adjusted, happy, that live in the acting out of these values... *"It is the duty of curricula in higher education to generate the formulation of "being" a professional, to create and interpret that reality in the short term to eventually unfold one's career with a high sense of professional integrity in the workplace. For Nietzsche, 'the best interpretation of reality proposes three ideas: of truth, of language and of values'"* (Piaget and García, 1982). Values in education must be implemented in universities to commune with the educational tasks as set forth by international organisms in education through strategies of axiological character that will let the teacher form and motivate attitudes in alignment with moral behavior, and that will allow the student to learn in values. These strategies must be included in curricula. Therefore, the necessity to analyze that curriculum is born and we propose the transversal axis to determine whether values are present, how their application is instrumented, didactically speaking, and the evaluation of the student to determine if the objective is reached. Thus, some curricula in higher education include ethics as a course, while only rarely is this course found at the university level. The instructor, within his performance, has the noble task of forming the future professional within a scientific-axiological scheme.

The concept of curriculum that Aristizábal carries out references Félix Angulo who quotes Hanesson indicating that *"...the curriculum was conceived as a form of organization and an instrument of social efficiency; that is, an organizational structure imposed by educational authorities to order the conduct of schooling"* (Aristizábal, 2005). *Given the importance and the contribution of curricular transversality, for the holistic formation inherent aspects to this subject on the following lines will be developed, in the way they are presented by Bravo (2006).* Including transversal themes into the curriculum means incorporating cognitive and affective lines, where both knowledge and information are conjoined to the world of values, the decisions, feelings and attitudes, as well as action.

Transversal axes contribute to the formation of the human being because they are instruments to insert values, give sense to education; a vehicle through which the objective or hidden discourse of education is conveyed. These axes are not longitudinal nor lineal; they permeate the curriculum; they are the spirit or soul of the curriculum. From this perspective, transversality connects school with life, by recognizing and assuming two dimensions of knowledge that complement and inter-relate with the process of the integral formation of personality: the knowledge that originates from curricular contents (conceptual, procedural and attitudinal) and the knowledge that emerges spontaneously from reality and the experience lived by students in their everyday life.. *Transversal themes are interpreted by various authors as bridges between vulgar knowledge and scientific knowledge, in the sense of connecting academic insight with reality or with the needs and interests of student, all of which is reverted into a greater functionality in learning* (Yus, 1997, as cited in Paredes, 2008).

Once we have established that the formation in moral values is necessary, we retake Kohlberg's posture. It is necessary that through stadia values be formed; the curriculum integrated through the transversal axis must include them, but emphasizing values that are fulfilled in the practical order of doing. This is the reason why they must first be based on theory, on their meaning, on their logical reasoning, on their projection so that once they reach the students' awareness they may be adopted by their own nature, buy conviction. This happens when one is not glad of another person's suffering, when one tries to "be good," on an adequate assessment and not according to circumstances. When a 3 or 4 year old child begins his comprehension and meaning of things, at school, in religion, in the family, in the society to which he belongs, he acquires values through the stadia that

form him; but can a 10, 12 or 13 year old child be able to practice them? Although the answer is positive, it can be negative as well because at this age education and society are viewed as heterogeneous and coercive by the child. Many juvenile delinquents shield themselves in the protection of the law when they perpetrate illicit acts and they cannot be penalized because they are not conscious of what they are doing. To cite an example: an eighteen to twenty-three year old adult that engages in sexual intercourse with a 16 year old minor is penalized by saying she was manipulated and raped because she is not emotionally nor morally mature to react to an immoral act. Why does the education in values in high school set aside this formation? In primary and secondary education most children are formed through a norm; they are even taken to and picked up from school under the protection of their parents. These children are not acting freely! These children act freely in the teenage years, when they start carrying out acts through which they must translate the values that were impressed upon them, but when they feel free they start a new phase: the same one that in childhood but in the practical order of doing. They start with communication codes, with rules created by themselves, for example: we will hit whomever rats us out; that is why they keep silent (an example of bullying) and that is why loyalty starts degenerating in its concept, but it is during this phase that they need to be formed in this new concept that will become the decisive one in their future life. That is, during this phase their preparation starts afresh and they act by themselves. It is here that we must apply Kohlberg's theory in emotional maturity, in the creation of firm attitudes generated by conviction. It is the creation of what Abraham Maslow calls self-fulfillment.

A strategy that can contribute in the formation of values at the mid-superior level is through the integrated curriculum. "The integrated curriculum is an holistic educational project defined as a process that expresses the relationships of interdependence in an historical and social context, the progress of science and the needs of the students, that must be translated in the education of the personality of the citizen that the teacher aspires to form" (Addine, 1997). For an integrated curriculum to be effective and efficient the student must have his own rhythm of development; the curriculum must include particular strategies specialized in learning that will incorporate the personal idiosyncratic experiences and expectations, previous information, all within an environment of globalization, interdisciplinary action, within a global society. Consequently, a discourse of interdisciplinary action must take in the schoolrooms and curricular tasks from the viewpoint of cultural contents; that is, attempt to see what relationships and grouping of contents may be executed through courses, through content blocks, through knowledge areas and experiences. As indicated by Torres (2013) in his article "Without walls in the schoolrooms: the integrated curriculum," the argumentative line in defense of the integrated curriculum is through the psychology of development and learning. This reasoning axis uses the theme of globalization which implies taking decisions on the way of organizing work in the schoolrooms and teaching centers respecting the peculiarities of boys and girls as is described in evolutionary and learning psychology.

6. Conclusions

Without education in moral values mankind would disappear; it would retrogress to a state without conscience where the most fit is the one that survives, and not the more human individual. It is required that society transmits moral values but from a global and updated perspective. If these values are also part of the societal culture, we must find the way in which the individual by himself reasons and finds his own spiritual evolution with a moral conscience towards peace and the evolution of being. There is a most important specific characteristic, which is the decision from among what is new, what I like, what makes me feel good, what I am told, what is good for me, what I consider makes me feel grown up, what I do not dislike, what does not hurt me, what does not make me angry, what does not make me feel bad.

The young person sees education as a link to the workforce rather than as an instrument of identity and moral development that will help him to live and transcend as an individual. It is time to create a new measure of value with tendency towards valuing what I do not only economically, but as in altruistic acts, also because they generate value in the common good. We must create in our youth the inclination for the development of highly acknowledged convictions. Individuals must be formed with tendencies towards morals and ethics, prepared for their spirituality with a focus on moral values.

There are diverse pedagogues that have considered the need of incorporating moral values in the curriculum. Based upon the theories of Kohlberg and Piaget, the formation of values in students at the mid-superior level from 13 to 19 years of age can be projected, which is necessary at this phase because the independence of conscious acts is established in this stage. Education must then form in the scope of values, totally influenced by a globalized social and interdisciplinary environment through the integrated curriculum. It is necessary to reflect upon the incorporating the formation of values at the mid-superior education through an analysis of the curricula of universities through the transversal axis and the integrated curriculum, thus projecting an integral formation of the individual so that he may transcend and achieve the common good: human coexistence in the path to perfection.

It is important to consider the relationship that is given to values from a perspective for human development based on moral values. Alternatives are required to reflect upon and to propose the scope that moral values have in their application to the student community at the mid-superior level as an instrument of prevention and determent of felonies such as fraud, corruption, racial discrimination, pollution of the environment, terrorist acts, violence, murders and others that negatively impact social stability currently. Although it is true that there is a tendency towards education in values at the international level, it is also important to decrease the indices of violence that is generated by the absence of moral conscience that must allow the practical order of doing.

To educate is not to provide a major to live but rather to temper the soul so that the individual can face the difficulties in life and act with values to transcend, evolve, interact and be part of his nature. It is time for man to transcend ethically; let us awaken the individual so his spirit may find happiness.

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The Gender-Marital Status Job Satisfaction Relationship of Academics

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Abstract

This study examined the marital status-job satisfaction relationship in higher education. The study instrument used was the short form Minnesota Satisfaction Questionnaire (MSQ) which measures overall job satisfaction, intrinsic satisfaction, and extrinsic satisfaction using 20 facets of the job. The instrument was personally administered to the respondents. The population for the study consisted of academics in North Cyprus. The results show that the job satisfaction of married academics is on the whole higher than not married academics. Overall job satisfaction and extrinsic satisfaction levels varying for different marital status.

Keywords: Job satisfaction; intrinsic satisfaction; extrinsic satisfaction; academics; marital status; North Cyprus.

1. Introduction

Satisfaction has been widely studied in the management literature (Spector, 1997) due to its relevance to the physical and mental well-being of the employee, as well as its implications for such job-related behaviours as productivity, absenteeism, turnover and employee relations. Job satisfaction also plays an important role in improving the financial standing of organizations (Aronson et al., 2005). In this respect, job satisfaction today still is a topic of major interest for many researchers and is an organizational variable that should be understood and constantly monitored for the welfare of any organization. In fact, understanding the job satisfaction of employees is an important organizational goal of any organization (Aronson et al., 2005) and indeed, has been a matter of growing interest for those concerned with the quality of working life and organizational efficiency (Maghrabi, 1999).

High quality academic staff is the cornerstone of a successful educational system (Sharma and Jyoti, 2009). As Johnes and Taylor (1990) state, the goals of higher education are to provide in-depth knowledge, seek academic development, educate students, as well as to coordinate national development demands, cited in Chen et al. (2006). None of these goals can be accomplished efficiently if low satisfaction or dissatisfaction exists

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amongst the university teachers in higher education organizations. Thus, the study of job satisfaction of university teachers seems inevitable. The job satisfaction of university teachers (academics), their commitment, and their retention are crucial to effective academic institutions. The understanding of factors affecting the job satisfaction of university teachers is of utmost importance for the implementation of a successful, innovative, and vibrant educational system. Furthermore, their job satisfaction translates into a healthy and positive academic environment. Thus, attracting and retaining high quality university teachers should be a primary requirement for any educational institution (Sharma and Jyoti, 2006, 2009). Although some degree of turnover is inevitable and perhaps desirable, high rates of faculty turnover can be costly to the reputation of an institution and to the quality of instruction (Al-Omari et al., 2008).

A review of published works reveal that there does appear to be general agreement that job satisfaction is an affective reaction to a job that results from the comparison of actual outcomes with those that are desired (Oshagbemi, 2003). Research findings have indicated that many personal characteristics affect job satisfaction in different and complex ways, these personal characteristics including gender, age, marital status, and working experience, to name a few (Koustelios, 2001).

Research focusing on job satisfaction in higher educational organizations has indicated that, on the whole, academics are generally satisfied with their work. Findings indicate that academics want work tasks that correspond to their personal interests and allow them considerable autonomy in task selection and decision-making; they want a sense of achievement, facilitated by feedback from supervisors; they want clarity as to what is expected of them and harmony among the various people they work with; and they want salaries awarded equitably and at a level that meets their expenses; and they want promotions to be awarded fairly (Kelly, 1989). The job aspects that are most frequently perceived as responsible for low satisfaction are pay, university administration policy, availability of resources, and working conditions (Kelly, 1989).

Dissatisfaction amongst workers is undesirable and dangerous in any profession, but it is suicidal if it occurs in the teaching profession (Sharma and Jyoti, 2009). As Johnes and Taylor (1990) state, the goals of higher education are to provide in-depth knowledge, seek academic development, educate students, as well as to coordinate national development demands (cited in Chen, 2006). None of these goals can be accomplished efficiently if low satisfaction or dissatisfaction exists amongst academics. The job satisfaction of academics, their commitment, and their retention are crucial to effective academic institutions (Saner and Eyupoglu, 2012). Academics find themselves in a profession that is highly stressful. The requirements of career completion, excessive course loads that tend to hinder research and insufficient payment are all factors that may cause financial and physiological discomfort for individuals (Koyuncu, 2001). Unless they maintain positive attitudes towards their profession they will inevitably fail in their professional career (Sirin, 2009).

The main purpose of this study is to examine the marital status-job satisfaction relationship in higher education, more specifically academics in North Cyprus, and to identify which aspects of the job are sources of satisfaction and which are source of dissatisfaction. Also the study will identify gender differences in relation to marital status. The results of this study will enable university authorities and policy makers to develop and implement policies towards the improvement of the undesirable conditions and the strengthening of the desirable conditions, reinforcing the higher-educational system.

2. Methodology

To measure the job satisfaction of the academics the short-form Minnesota Satisfaction Questionnaire (Weiss, Dawis, England, and Lofquist, 1967) was utilized. The Minnesota Satisfaction Questionnaire (MSQ) is one of the most widely used instruments in the measurement of job satisfaction (Scarpello and Campbell, 1983) and its validity and reliability has been proven over the 40 years that it has been in use. It has been used to measure job satisfaction in a variety of sectors, including education. The short-form MSQ is composed of twenty facets, each facet represented with just one satisfaction item. The short-form MSQ measures three satisfaction scales, namely intrinsic satisfaction, extrinsic satisfaction, and overall job satisfaction. Intrinsic satisfaction refers to occupational conditions (how people feel about the nature of the job's tasks), and extrinsic satisfaction refers to environmental conditions (how people feel about features of the job that are external to the work). Respondent academics were asked to express the extent of their satisfaction with each of the 20 facets of their job on a five-point Likert scale ranging from 1 (very dissatisfied) to 5 (very satisfied). The original short-form MSQ was translated into Turkish by the authors and tested on ten academics to test its validity and reliability. The internal consistency of the translated questionnaire was 0.85, obtained using Cronbach's alpha coefficient. The questionnaire was accompanied with a personal information form in order to determine the demographic variables of the academics that participated in the study.

The population for this study comprises academics from 5 of the North Cyprus universities. A total of 600 academics were randomly approached with 412 agreeing to take part in the study, resulting in a response rate of 69%. The questionnaires were administered in an interview format. Though extremely time consuming, this method was utilized so as to ensure as high a response rate as possible, hence the use of the short-form MSQ over the long-form. Of the 412 respondents, 67.7% were lecturers with a master degree, 7.8% were lecturers with a PhD, 13.3 per cent were assistant professors, 4.6% were associate professors, and 6.6% were full professors. The low number of respondents from the academic ranks associate professor and full professor is an indication of their relatively small numbers in the academic population in North Cyprus compared to the other ranks, though this is not surprising for a developing country. However, it is not felt that these percentages have had an affect on the final results as comparable studies conducted have also yielded both similar sampling percentages and similar results. Such studies include Ssesanga and Garrett (2005) and Oshagbemi (1997). Just slightly over half the respondents (53.4%) were male and 46.6% were female, and 63.8% were married and 36.2% were not married. The greatest percentage of respondents (37.6%) were in the age range 21-30, 34.5% were in the age range 31-40, 17.2% were 41-50, 6.1% were aged 51-60, and the remaining 4.6% were in the age range 61 and above.

The statistical package for the social sciences (SPSS) version 13.0 was used to analyze the data collected. Analysis consisted of the computation of descriptive statistics and ANOVA in order to examine the different job satisfaction levels of the academics in relation to their marital status.

3. Findings and Discussion

The mean scores (M) and standard deviations (SD) for the job satisfaction of academics in North Cyprus in relation to marital status can be seen in Table 1. Mean scores below 3.50 are considered to be more on the "dissatisfied" side of the "satisfaction-dissatisfaction" scale with mean scores above 3.50 being more on the "satisfied" side of the scale (Pearson and Seiler, 1983). As Table 1 presents the level of overall job satisfaction experienced by married and not married academics are above 3.50 thus indicating job satisfactions except for

extrinsic satisfaction of not married academics indicating a mean level of 3.41. The analysis indicates that married academics are more satisfied than not married academics. This is supported by Sharma and Jyoti (2009).

Table 1 Marital Status-Related Mean Satisfaction Scores

Variables	Overall Job Satisfaction		Intrinsic Satisfaction		Extrinsic Satisfaction	
	mean	sd	mean	sd	mean	sd
Not Married	3.61	0.70	3.71	0.75	3.41	0.72
Married	3.74	0.61	3.84	0.59	3.56	0.75

Table 2 Marital Status/Gender Related Mean Satisfaction Scores

Variables	Overall Job Satisfaction		Intrinsic Satisfaction		Extrinsic Satisfaction	
	mean	sd	mean	sd	mean	sd
Not Married Male	3.52	0.66	3.64	0.65	3.30	0.78
Married Male	3.71	0.61	3.82	0.60	3.50	0.74

Variables	Overall Job Satisfaction		Intrinsic Satisfaction		Extrinsic Satisfaction	
	mean	sd	mean	sd	mean	sd
Not Married Female	3.76	0.73	3.83	0.90	3.61	0.74
Married Female	3.77	0.62	3.85	0.59	3.61	0.76

From Table 2 it is possible to see the mean satisfaction scores of the academics in relation to marital status and gender. Not married female academics are clearly more satisfied than not married male academics. With a mean score of 3.30 not married male academics indicate dissatisfaction with extrinsic job satisfaction.

It is also evident from the table that married female academics indicate higher levels of satisfaction compared to married male academics. The satisfaction of female university teachers may be explained by their role in the family, especially if they are not the sole or the primary income earner (Oshagbemi, 2000). This finding is consistent with Saner and Eyüpoğlu (2012) who indicated that the intrinsic and extrinsic satisfaction mean scores are highest for the female university teachers. This is also further supported by Sharma and Jyoti (2009), and Oshagbemi (2000, 2003).

4. Conclusion

The main purpose of this study was to examine the marital status-gender job satisfaction relationship amongst academics in North Cyprus. The results show that the job satisfaction levels of the married academics are on the whole higher than the not married academics. Results further indicate that the female academics (married and not married) are more satisfied when compared to the male academics (married or not married).

The results of the study suggest that university management and higher education authorities need to pay attention to the job satisfaction issues of the married and not married academics on a gender basis and understand their concerns regarding their job satisfaction. Furthermore, academics with different levels of job satisfaction may result in the need for university management to consider different motivational techniques in order to improve overall performance.

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The Good, the Bad, and the Ugly: Teaching Critical Media Literacy with Disney

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Abstract

This research uses a qualitative approach to studying Critical Media Literacy (CML) with young girls by collaboratively analyzing Disney animated films with young girls age seven to eleven. The Ontario Curriculum in Canada has recently introduced CML as a new implementation to aid children in becoming active agents in interpreting media images. Using Disney as an educational tool, two focus groups were used in order for the girls in this study to analyse ideologies present in Disney animated films for the purposes of opening up dialogue surrounding CML and Disney female characters. This paper is based on a larger graduate project which I conducted at Brock University, and focuses only on one topic of powerful Disney female characters.

Keywords: Critical Media Literacy; Disney; Femininity; Female Power; Animated Films

1. Introduction

This research engages young girls in critical media literacy (CML) in order to become active agents in consuming media. Children are being bombarded with invasive media images multiple times a day. It is vital that children become active agents by being able to critically interpret media images and in-turn use education to have control over their culture. Therefore, the Ontario Curriculum (2009) introduced the importance of CML so that children will be able to differentiate between “fact and opinion; evaluate the credibility of sources; recognize bias; be attuned to discriminatory portrayals of individuals and groups, including women and minorities; and question depictions of violence and crime” (p.13).

In turn this research will provide a platform for young girls to contribute to the existing information about Disney in relation to young girls. Using Disney as an educational tool and conveyor of femininity, the girls in this study analyze ideologies present in particular animated films for the purposes of opening up dialogue about what CML is, how it can be used, and why it is an important skill to acquire, particularly in relation to girls’ viewing of Disney films. CML skills can provide the opportunity for girls to assess texts and images in relation to understanding “relationships between power and domination” that underlie and form texts (Gainer, 2007, p.107). Therefore, CML enables girls to understand immediate images while simultaneously reading between the lines and beyond the screen (Gainer, 2007).

The larger portion of this study includes several different topics in both the literature review and the analysis including the physical appearance of the Princesses, gender conformity in Disney female characters and

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heterosexuality between characters. However, for the purpose of this paper only one section will be the main focus. The area of analysis is centred on powerful female Disney characters and the young girls' interpretations of these characters. *Cinderella* (1950) and *The Little Mermaid* (1989) are two films that were used for this specific area of the study and allowed the participants to participate in critical media literacy and in turn become critical viewers of media.

1.1. Research question

This study explored the following question: How might critical media literacy skills create a space for discussion and promote awareness of ideologies in Disney films for girls?

2. Critical Media Literacy

Critical theory promotes examining and critiquing society as a whole by unearthing the underlying ideologies by which society is governed. CML grew out of critical theory as this critique of society often included more specific components, such as media and popular culture. CML is a branch of critical theory and comprises my theoretical framework for this research. CML can be defined as, "a pedagogy that positions students to analyze relations among media, audiences, information, and power to produce alternative media texts that challenge messages in dominant discourse" (Kellner & Share, 2007, p.62). Moreover, CML encourages viewers to draw "on their cultural resources and life experience as they deconstruct, debate, resist, and reimagine dominant narratives" (Kellner & Share, 2007, p.63).

Kellner and Share (2007) use the metaphor of an iceberg to further explain CML. Many students have the ability to analyze the obvious parts of media, the part of the iceberg that is exposed atop the water. However, CML allows students to not only analyze the exposed iceberg, but also the entirety of the iceberg that is submerged underwater. This will allow students to see beyond the immediately visible aspects of Disney films and explore below the surface of Disney characters, which may contain the "embedded ideological notions of white supremacy, capitalist patriarchy, classism, homophobia, and other oppressive forces" (Kellner & Share, 2007, p.8).

Kellner and Share (2005) advocate for CML as it not only teaches students to learn from and constructively use media, as well as resist its manipulation forces, but also to develop skills that will "help create good citizens and that will make individuals more motivated and competent participants in social life" (p.372). The use of CML allows viewers to become agents in the construction of their own interpretations of media texts. The importance of this theoretical framework is that it enables children to gain power over and knowledge from their culture rather than being passive recipients of media, thus enabling them to create personal meanings and identities that may result in transforming the world around them. The understanding of the social construction of knowledge through media interpretations enables students to expand critical inquiry into all outlets of information and communication. Children become active agents in the process of media interpretation, allowing them to deconstruct injustices, express their own voice, and in turn create a better society.

2.1 Critical media literacy and Disney

Giroux and Pollock (2010) suggest “animated films operate on many registers; one of the most persuasive is the role they play as the new ‘teaching machines’ as producers of culture” (p.164). Therefore, films can be learning tools for children, especially because “film discourses engage viewers not simply in the active construction of knowledge but also in the construction of knowledge from a particular point of view” (Gainer, 2007, p.365). The Disney Corporation own the majority of media that children consume, allowing Disney to provide children with a limited worldview, skewed and dominated by corporate interests. Often children and parents alike do not have the tools necessary to critically analyze the images provided by Disney.

More importantly, Disney is a “global cultural institution that fiercely struggles to protect its mythical status as purveyor of moral virtue” (Giroux & Pollock, 2010, p.93). Disney is one of the primary institutions constructing childhood culture around the globe; Giroux and Pollock (2010) suggest that Disney warrants healthy suspicion and critical debate. Giroux and Pollock (2010) also advocate that “Disney films will have *better* educational and entertainment value the more young people think about the conscious and unconscious messages and effects the films promote while resisting the temptation to view them as non-ideological” (p.99). Furthermore, Disney films resonate powerfully with dominant perceptions and meanings because of the context in which they are situated. This critique suggests the need to critically analyze how the “privileged dominant readings of Disney’s animated films work to generate and affirm particular pleasures, desires, and subject positions that define for young people specific notions of agency and social possibility” (Giroux & Pollock, 2010, p.103). This analysis can be accomplished with the use of critical media literacy, which allows children and others to read films “within, against, and outside the dominant codes” (Giroux & Pollock, 2010, p.103).

The development of CML provides a space for children to question images and ideologies presented in Disney films. Children may not have definite answers to questions, but the questions are asked in order for children to critically think about the entertainment to which they are exposed. The notion of hidden ideologies is “not necessarily invented by Disney, but what they do with these notions is caricature them, wrap them up in magic kingdom wrapper and sell them to children; that is the power of Disney” (Sun & Picker, 2002). CML will allow children to critique these wrapped up notions and in turn create a space to challenge the information provided by Disney. The importance of CML is that it does not force a child to choose whether Disney is good or bad; instead it allows space for questioning. Children may not be aware of the hidden ideologies that have been referred to as “oppressive forces,” however, CML will enable children to become active agents in the construction of their own media interpretations, thus providing a safe space to discuss injustices, personal opinions, and hidden themes in Disney films.

2.2 Feminist views

The notion of the feminine beauty ideal, defined as “the socially constructed notion that physical attractiveness is one of women’s most important assets, and something all women should strive to achieve and maintain” is of particular interest to feminist scholars (Baker-Sperry & Grauerholz, 2003, p.711). The feminine beauty ideal idealizes the attractiveness of a female which in turn reaps social and psychological rewards. The perception is that physically attractive individuals possess more positive qualities, thus making them more relatable and likeable opposed to the unattractive individuals. Baker-Sperry and Grauerholz, (2003) argue the feminine beauty ideal is often viewed in a negative light as an oppressive force in which patriarchal power objectifies, devalues, and subordinates women. However, it is widely accepted that females understand and

perceive beauty or becoming beautiful as an empowering force, rather than oppressive (Baker-Sperry & Grauerholz, 2003). It is interesting to note a paradox of the feminine beauty ideal is that “in a patriarchal system, those women who seek to gain power through their attractiveness are often those who are the most dependent on men’s resources” (Baker-Sperry & Grauerholz, 2003, p.712). Unquestionably, Baker-Sperry and Grauerholz (2003) claim the group which benefits the most from this ideal is white, heterosexual, middle- and upper-class women; and in turn, this group of women to whom the feminine beauty ideal is directed is the majority depicted in children’s fairy tales. Baker-Sperry and Grauerholz (2003) concluded from their study that young women are often described as “beautiful,” “pretty,” or “fair” compared to older women or men in children’s fairy tales. More importantly, the authors concluded media, including children’s media, often conveys the message of high importance of feminine beauty by not only having beautiful characters in main roles, but also demonstrating how beauty results in gaining rewards (2003). Bazzini, Curtan, Joslin, Regan, and Martz (2010) further support the feminine beauty ideal in children’s media by suggesting the “heroic prince and virtuous princess are attractive, but the wicked witch and evil giant are ugly” (p.2688). The implications and significance of this ideal is further asserted by Myers (2002) who emphasizes that, “children learn the stereotype quite early; Snow White and Cinderella are beautiful and kind, the witch and the step-sisters are ugly and wicked” (p.248). Baker-Sperry and Grauerholz (2003) suggested past and recent Disney animated films often alter retellings of popular fairy tales by changing previous female characters in aspects of “ingenuity, activity, and independence but not physical attractiveness” (p.722). It is evident that Disney may be attempting to put a positive spin on outdated female characters by possibly adopting different gendered behaviours, however the attractiveness of the female characters remain untouched.

2.3 Relevance

CML is important in order to deconstruct images that construct knowledge in childhood. Disney produces specific ideologies through its characters, which young children may internalize as norms or specific ideals that must be attained. CML can empower children to actively challenge, question, and critique images found in the media. But while Disney is a multi-national corporation whose goal is to make money, its films can also be used as educational tools. Disney characters have the potential to become role models for young children, thereby emphasizing the importance for CML. Considering Disney’s control over childhood culture, it is imperative to understand the influence it can have on young children.

Altogether, the Walt Disney Corporation is the world’s largest media conglomerate in terms of revenue. The Walt Disney Corporation earned approximately \$40.8 billion US dollars in revenue in 2011, emphasizing the power of Disney as a corporate giant. According to data dating back to 1995, Disney is consumed by millions of people. For example: approximately 200 million people watch a Disney film per year, 395 million people watch a Disney-produced television show each week, 212 million people listen to Disney produced music each week, 50 million people visit a Disney Theme park per year, and 42 million people per year make a purchase at a Disney store (Giroux, 1995). With the construction of new parks and the addition of multiple films since the mid 1990’s, one can only imagine the increase of visits and purchases that contribute to the Disney Corporation. With such an enormous fan base, it is evident that the Disney Corporation is well respected and highly valued by families. The enormity of the Disney Corporation and its control over children’s media is what provokes me to further explore how girls can engage with CML to think critically about Disney films.

This research is also relevant as it contributes to the field of Child and Youth Studies in several ways. This study is focused on doing research with children and allowing children to share their opinions, instead of professionals or parents speaking on their behalf. Furthermore, CML is a great strategy that is being implemented into the elementary grades of the Ontario Curriculum. My study adds to this body of research on why CML is crucial to the intellectual lives of children. Child and Youth studies is a growing field and much research has been done on the Disney Corporation, however most research takes a stand on Disney as being either beneficial or detrimental to children. My research contributes to the field as it shares the opinions, concerns, and voices of young girls, without forcing children to choose whether or not Disney is beneficial or damaging to their lives.

3. Literature Review

Disney's binary colour symbolism often associates white with goodness and black with evil (Hurley, 2005). This binary leaves little leeway for alternate personalities to be displayed other than "good" and "evil." In relation to this colour schema, Disney solidifies a dichotomy within femininity through the portrayal of certain female characters. The dichotomy constructs feminine roles as either powerful or passive. Power, in Disney, is represented in a negative light, whereas, passivity is associated with the positive. The colour symbolism supports this dichotomy by associating black with power and evil and white with goodness and passivity. The powerful characters are portrayed as independent, unattractive, mean, hated, single and represented and associated with the colour black; whereas, the passive characters are associated with the colour white, and are portrayed as dependent, nice, pretty, and often, eventually become coupled or married. The dichotomy between the powerful and passive characters is emphasized through their physical appearance. Ursula, Maleficent, and Cruella de Ville are described as mistresses of all evil, and are thus represented as unattractive, loud, bawdy, and inappropriate women (Zarranz, 2007)

Ursula, the wicked sea witch from *The Little Mermaid* (1989) is the very essence of the evil-but-powerful woman who does not fit the stereotypical body image of the Disney Princesses. Ursula, is half human, half octopus, and is portrayed as an obese black and purple squid that "oozes with evil and irony" (Giroux & Pollock, 2012, p.101). She is composed of six octopus tentacles and two human arms. Her resemblance to a non-human, monster-like creature further dehumanizes her and emphasizes her ugliness. Her body's physical presence emphasizes her dominance in the sea world. This physical presence diminishes the spotlight from other characters, which stresses the evil power she possesses to overcome anyone in her wake. Do Rozario (2004) describe Ursula as a "grotesque parody, who expands, suffocates, and overwhelms as an overweight, ugly woman" (p.44). Ursula also has an army of black eels that she uses to spy on and sabotage other characters.

Ursula's true evilness is expressed by her actions. Her manipulative nature negatively affects other characters. Ursula's desire to dominate the underwater kingdom can only be achieved by destroying King Triton's rule. She chooses to do so through the manipulation of his daughter, Ariel. Ursula takes advantage of Ariel's desire to be a human, and Ariel exchanges her voice for three days of human life. Ursula's manipulation and disregard for others displays her selfish actions, reinforcing her unattractive and evil character. Through Ursula, Disney constructs a deeply damaging view of female power. Ursula can be regarded as a powerful woman in a Disney film; however she uses her power for evil, and not for good. The depiction of powerful females is thus associated with evil, suggesting that power and kindness/beauty are mutually exclusive in women (Do Rosario, 2004).

Maleficent, from *Sleeping Beauty*, is one of the most dark and intense characters ever produced by Disney (Hurley, 2005). Her evil character is reinforced through her gloomy, unsightly appearance. She is a tall, thin, pale-green skinned woman with yellow eyes. Her facial characteristics have sharp definition. She is dressed in an oversized, black, and purple robe, which hides her true body shape. Maleficent is accented with a horned headdress, which symbolizes her dark, evil magic. Her wickedness is further heightened by her ability to shape-shift. Shape shifting deviates her character from being human; allowing her to change her physical form so her

victims are unaware of her presence (Hurley, 2005). By doing so, Maleficent is displaying extreme power, which is only used for selfish and evil ends.

Female power is repeatedly shown in a negative light in Disney animated films. The evil characters are arguably the most powerful female characters in the films; however this representation of power is controversial, as they are purely evil. Disney lacks a positive powerful female character for young girls to observe. Discussion around what it means to be a powerful woman will take place in my focus groups. I am interested in learning how young girls perceive these powerful women and how their representation as evil and ugly factor into their perceptions.

4. Methods

The focus of my research was to provide a space for young girls to share their opinions and make their voices heard, all of which was possible through qualitative research. I recruited four girls between the ages of 7 and 11 and two focus groups were used in order to collect data. Each participant has a pseudonym in this paper to protect her confidentiality. The same four participants partook in two separate focus groups. The participants were encouraged to provide answers and opinions to critical, thought provoking questions, and were encouraged to ask their own questions, as well. The focus groups lasted 60 minutes each

A semi-structured question guide was followed in order to create open discussion with the participants. The second focus group included media analysis of Disney animated films. The participants were asked to voice their opinions on the female characters featured in each clip and provide insight on topics that included: After discussion of each film clip, wrap up questions were asked in order to collect an overall understanding and connect all the clips together. This wrap up also provided a chance for the participants to share any final thoughts which they may not have had the chance to throughout the focus group.

4.1 Focus group one

The first focus group allowed for a general discussion of Disney and displayed the participants' interest and broad opinions of Disney films. The first focus groups was intended for me to gain a basic understanding of the child's position on Disney by exploring topics such as favourite movie, favourite character, and any other stories the participants wanted to share. Some example questions included: Why do you like Disney? Is Disney educational or only entertainment and why? The questions moved into a more specific focus of female Disney characters with questions such as: Does anyone have a favourite female Disney character? Why is that particular character your favourite? This focus group was intended to set the foundation that would lead to more specific questions of female characters in the follow-up focus group. The first focus group was intended to explore how much understanding the participant's showed in relation to female Disney characters. Questions were also asked that might provide an understanding of the participants' engagement with critically analyzing media through an inquisitive approach. Questions to evaluate critical thinking included: Who creates the Disney movies? If you could change one thing about the princesses what would you change? The participants also discussed which films they preferred to watch in the second focus group, which allowed them to have a voice in the research process as these films were selected for critical analysis.

4.2 Focus group two

The second focus group consisted of watching clips from Disney films, followed by asking the participants questions that opened a critical discussion of female characters. The first film clip that was shown was from the film *Cinderella* (1950). The clip included the part when Cinderella's stepsisters were about to leave for the ball to meet the prince. Cinderella's animal friends had just collected scrap material from the stepsisters and sewed a brand new dress for Cinderella to wear so she also had a chance to go to the ball. Cinderella walked down the stairs to join her stepsisters, until they became aware that Cinderella's wardrobe was made up of their belongings. The stepsisters proceeded to rip and tear Cinderella's dress until it was completely spoiled so that she could no longer attend the ball. The stepmother was present for the whole scene, which ended with Cinderella running up the stairs to her room crying, while the stepsisters continued on their way to the ball.

The second film clip was from the movie *The Little Mermaid* (1989) with a main emphasis placed on Ursula, the evil sea witch. The clip featured the song "Poor Unfortunate Souls" in which Ursula explains and demonstrates her powers to Ariel, who is passively watching her sing. The scene begins with Ursula explaining the potions she has used and the people she has cast spells on in the past, whom are all now trapped and under Ursula's control. Ursula explains to Ariel that in order for Ariel to be granted her wish to have feet, Ariel must give up her voice to Ursula. The only way for Ariel to get her voice back is that if she shares a true love kiss with the Prince above the sea on land. If the kiss does not happen, then Ursula makes it clear that she will have control of Ariel for eternity, and she will become Ursula's minion. The clip ends with Ariel being granted feet.

5. Analysis and Discussion

"I think they made Ursula look like that because she's mean, and usually mean people look bad" – Cayley, age 7

The goal of this research was to open a discussion around ideologies that can be noted in Disney animated films, especially with regards to female characters. One of the main themes in my literature review covered existing literature on powerful female characters which are notoriously the evil characters in Disney. Power, in Disney, is represented in a negative light and I was looking to understand if young girls' grasp this ideology on their own. The feminine beauty ideal is of particular concern as Disney seems to adopt this notion, constructing the villains in an unattractive manor.

During the first focus group, the participants did not focus much attention to power from female characters. However, a main character that was briefly focused on for this section was Ursula from *The Little Mermaid* (1989). As stated in the literature review, Ursula's physical presence diminished the spotlight from other characters, as her large body and negative actions dominate throughout the film. It is interesting to note that Cayley was elaborating on her favourite character Ariel, which led her into a discussion about the "bad person" in *The Little Mermaid* (1989). It is fascinating that Cayley extended the discussion from Ariel as a favourite character, to Ursula who was disliked. This example creates a link to how Ursula is a dominating character in the film. At the first mention of Ursula, she was referred to as "this mean bad person in [The Little Mermaid.]" Upon the mention of Ursula, an overwhelming uniform response from all participants was that she was "mean and evil." The participants repeatedly referred to Ursula as "that mean person" or the "evil person" instead of using her characters' name throughout the discussion in the first focus group. The participants gave simplistic reasons for disliking Ursula which connected directly to the plot of the film, mainly Ursula's power to take away Ariel's voice. I was surprised that the participants did not elaborate or divulge deeper into reasons for disliking Ursula because of her evil ways in the film.

Brittney veered away from Ursula and shared that a character that she did not like in Disney films was “the evil person in Snow White, because she gave Snow White the poison apple.” Jade interjected and added that it was the “Evil Queen” who was trying to poison Snow White, and that she was disguised as “old and ugly.” Although in the first focus group the participants did not connect the evil characters to be powerful, there was overwhelming response to referring to these characters as mean and ugly, and this was the main reason for disliking them. I recognized the participants picked up on the unattractiveness of specific characters and connected it to these characters being disliked.

The second focus group rendered much deeper critical discussion about Ursula specifically, as well as the step sisters and step mother from *Cinderella* (1950). The second focus group included viewing film clips which created a deeper discussion and allowed for more critical thinking because the images were so fresh in their minds. I realized there were clearly much deeper and stronger connections in the second focus group and I attributed the deeper criticality to the inquisitive approach of CML.

The first clip the participants watched was a scene from *Cinderella* (1950). The clip centered around Cinderella’s step sisters spoiling Cinderella’s dress and destroying her outfit so that she could not attend the ball. Cayley, Kara, Brittney and Jade all simply referred to the step sisters as “mean” for spoiling Cinderella’s dress, but did not go into more detail. I further encouraged the participants to discuss the scene in terms of how the sisters treated Cinderella but the descriptor word remained as “mean.” I suggested to the participants to try and connect the actions of the step sisters to something in their own lives. An automatic and very quick response was given that paralleled the steps sisters’ actions to “bullies.” The participants were able to recognize the power imbalance between the step sisters and step mother compared to Cinderella, by paralleling the scene to a victim and a bully, Cinderella being the victim. The consensus for this happening was because Cinderella was younger than the step sisters, so the participants believed the power imbalance was due to a hierarchy, similar to older children bullying younger children. I argue this as all four participants displaying critical thinking as they were able to make a connection between the film and their personal experiences as this demonstrated how the participants were able to make connections that went beyond the film. By discussing the behaviours of bullies, it raised a conversation surrounding people’s actions and how we are all responsible for our own actions. The participants collectively agreed that they would not enjoy to be treated the same way Cinderella was, and in turn it would not feel good if they treated anyone the same way.

Furthermore, a key component of CML is encouraging children to become critical viewers of media, which is supported by raising ideas that challenge children to begin to ask their own questions. Interestingly, during the second focus group, the participants began to critically assess Ursula’s intentions and in turn began asking questions that lead to a group discussion. For example, when discussing Ursula’s plan to take Ariel’s voice, Cayley raised an interesting question, stating “I don’t really get it, when [Ursula] takes away [Ariel’s] voice and she gets feet, if [the prince does not fall in love with Ariel] will she get her voice back?” Kara interjected, and further inquired, “If she has to live with Ursula, does she get her voice back?” Brittney answered her peer’s question by suggesting that she does not think Ariel would get her voice back, because “Ursula’s mean and she might not give it back.” Therefore, this dialogue shown between the participants demonstrates critical thinking by engaging in a dialogue assessing potential outcomes that were not provided directly in the film. The participants had to extrapolate their understanding of Ursula’s behaviours and use their own ideas to arrive at an outcome for what would happen to Ariel’s voice.

The participants’ observations and paralleling to the film clips to bullying reiterates Gainer’s (2007) understanding that CML allows children to understand immediate images in films while simultaneously reading beyond the screen. The way the participants stated they would feel unhappy to be treated or treat someone similar to the experience in the *Cinderella* (1950) clip, the participants gained an understanding of a power imbalance and in turn challenged the media image by disagreeing with it, which is a key component that makes up the

definition of CML (Kellner & Share, 2007). Kellner and Share (2007) also suggest CML encourages viewers to utilize personal life experiences to debate dominant narratives, something which the participants were able to do a great job disagreeing with the actions performed by the “evil characters.” Overall, based on the existing literature on powerful female characters in Disney films, I argue that my focus group data suggests that although young girls are able to identify evil characters and describe them as being unattractive, I do not believe young girls’ grasped the essence of female power necessarily equating evilness. I do not believe the participants made a clear link or understanding that emphasized Disney’s use of female power to be negative. I do believe the participants were able to observe females as having power and simultaneously described them as “ugly” however I argue the participants did not have a comprehensive understanding of Disney’s use of unattractive female’s that uses power in a negative light.

6. Conclusion

A particular focus of this study was to provide a platform which allowed the voices and opinions of young girls to be shared with regards to their understanding and interpretation of Disney female characters through the use of CML. After collaboratively viewing animated Disney films, it is evident that the young girls in this study were able to be critical viewers by answering questions with relation to specific films. Disney is an enormous corporation which holds immense power over childhood culture worldwide and in turn makes Disney a very important aspect of many children’s lives; and in turn, it is important that children are able to critically view Disney to have power over their own culture. CML is an important tool which is being implemented into the Ontario curriculum in order to provide children with the means necessary to understand the abundance of media which bombards them daily. CML is implemented in schools Ontario wide, but it is also important that CML is also used in the daily lives of children. The benefits of CML is that children are able to become critical viewers of media, without boycotting the media which brings them entertainment and happiness.

There are many suggestions for future directions in this research topic. There is limited research on CML and Disney that voices the opinions of children and therefore many gaps exist with the point of view from children themselves. Furthermore, the sample for this study was very limited and homogenous, so a larger and more diverse sample would be able to produce a richer discussion from different points of view. Overall, I strongly recommend that parents and/or guardians recognize the importance of CML, and understand that children’s movies are a form of entertainment which can also be very educational simply by asking questions.

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The Image of School Principals Based on the Views of Teachers in Turkey

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Abstract

The goal of the study is to exhibit and describe the image of school principals based on the views of teachers. The participants of the study are 127 teachers working in ten different state schools in Kartepe region of Kocaeli province, Turkey in the educational term of 2012-2013. In this qualitative research, the data have been obtained by means of "Survey of Metaphors attributed to School Principals". The data obtained have been analyzed and interpreted by using the content analysis method. At the end of the research, 127 different metaphors developed by primary school teachers were ascertained. 53 of these metaphors were seen to put emphasis on the positive roles of school principals while 74 of them underline the negative ones. In this regard, it is concluded that school principals own a positive image according to the views of teachers.

Keywords: School Principal, image of principals, metaphor

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1. INTRODUCTION

Today people's appearances and the impressions in social life and business life have great importance. The concept of "image" which includes both these appearances and impressions are very important for both individual and organizational success. The concept of "image", which is used to express the positive and negative sides of humans, organizations, products, or services, has become a popular research topic recently.

Image is the opinions of a person on an object, organization or another person and it occurs as a result of an enlightenment process (Öneren, 2013). According to Dichter(1985) the image is positive or negative opinions about an object or an entity which occur as a result of interactions of ideas in a person's mind and they occur in a period of time. In other words the image is the association of ideas, feelings and impressions and the perception that is the result of the positive or negative evaluations of these(Örer, 2006). Firstly, the previous judgments and knowledge of people, the services received and the provided opportunities are perceived and they make up the general idea about a subject, organization or a person. This is called as "image" (Örer, 2006; Öneren, 2013).

Everyone has an image about a person working in an organization in social or business life consciously or unconsciously, and this image causes him/her to be evaluated positively or negatively (Öneren, 2013). So the concept of image is important both individually and organizationally, because to be successful, it is important to have a positive image (Özata ve Sevinç, 2009).

In literature, many types of image such as personal image, organizational image, positive image, negative image, brand image, product image, professional image, country image, perceived image, desired image, current image, transfer image are described(Özata ve Sevinç, 2009). This study focuses on "personal image". The image that occurs as a result of evaluations on a person's characteristics is considered in the personal image context(Bakan, 2004). It is possible to describe the personal image as "the impression, opinion, appearance in people's mind and they occur depending on knowledge and data which have been gained as a result of personal and environmental factors during interaction process with other person.

The struggle for creating an image has always make its presence felt in consequence of people's want to identify the perception towards themselves(Öneren, 2013). According to Ersoy (2011) the physical appearance of a person, his/her verbal and non-verbal communication, his/her character (charisma, self-confidence, self-esteem,etc.), his/her competences (his/her background, potential, personal development, experience, noticeability) affect his/her personal image.

The personal image helps the other people understand who the person is, what s/he does, how successful s/he is. The personal image comes up as a combination of self image, perceived (current) image, and desired image.(Peltekoğlu, 2001; Bakan, 2004; Örer, 2006; Ögüt, 2008). This research has aimed at the perceived image of school principals, because it has given on to teachers' image perceptions towards their principals. The perceived (current) image is how other people see the (Örer, 2006). In other words, it is described as the current image of a person, a group, an organization, a corporation, a system or a society (Peltekoğlu, 2001; Bakan, 2005; Ögüt, 2008). The desired image reflects the ideal, so it can be different from the current image. When the current image and desired image are different from each other, the person, group, organization, corporation, system or the society might need to change the meanings that it generates in others' minds (Rekom, 1997; akt: Bakan, 2004). Because of this, it is necessary to understand the current image to define the desired one. This research aims at understanding school principals' current images which is why it is important.

Another way of classifying images has been dividing them into two categories: positive or negative images and it has been decided according to the of a person, a group, an organization, a corporation, a system or a society's "created image"s' being positive or negative. Positive image defines sympathetic and positive perceptions that occur as a result of a person's intra-organization and inter-organization experiences. However, negative image defines the image which comes up in consequence of negative perceptions in people's minds depending on intra-organization and inter-organization behaviors (Peltekoğlu, 2001; Bakan, 2004; Örer, 2006;

Öğüt, 2008). This research will also try to understand whether the school principals' images are positive or negative images.

2. Methodology

In this research that has been designed with qualitative research, content analysis has been performed and the motif of phenomenologic method has been used.

A semi-structured questionnaire form has been used by the researcher in order to describe the image perception of teachers relating to the principals. In the semi-structured questionnaire forms, 4 descriptive questions which are related to gender, seniority, types of schools, and the number of the teacher at the school, and 2 metaphoric and justification questions have been asked in order to determine the image of principals. In the first question, the teachers have been asked to assimilate the principals to something, in the second question they have been asked why they have assimilated the principals to those things. The teachers have been provided with filling in the forms on electronic media by giving the link of the questionnaire form which has been prepared on electronic media to them.

In order to determine the image perception of nursery school, primary, secondary school and high school teachers related to principals, the sample has been chosen by means of maximum variation sampling method which is suitable for qualitative research methods among teachers. The purpose of the maximum variation sampling is to form a relatively micro sampling and, to reflect the variety of people who can be at the side of this problem in maximum amount (Yıldırım and Şimşek, 2008: 108). For this purpose, the variety has been taken into consideration according to the type of school and the locations of the schools. According to this, the study has been carried out on 2 nursery school teachers, 5 primary school teachers, 5 secondary school teachers and 5 high school teachers.

The diversification of the data has been preferred to increase the validity and reliability. This diversification of the data is important by means of counting participants that have different characteristics, by means of setting forth different perceptions and experiences so that multiple realities will be reached. (Yıldırım and Şimşek, 2008: 207). In this sense, in order to provide the diversity, the research has been carried out by choosing the teachers that have different characteristics (gender, seniority, class and branch) from different schools (nursery school, primary school, secondary school, high school and the spacious of the school.)

The data which have been collected on the electronic media have been analyzed with content analysis. First of all the metaphors, which the teachers have produced, have been encoded according to the qualifications of the teachers who developed that metaphor. Then the encoded metaphors have been evaluated whether it is a metaphor or not and the coherence of the developed metaphor and its explanation and the metaphors that have been developed by some of the teachers are invalid. The developed metaphors and its justifications have been put to content analysis and it has been divided into two categories as positive and negative. In order to check out the validity and reliability of the categories, 5 PHD program student have conducted the same process. For reliability, the Reliability= $\frac{\text{Agreement}}{\text{Agreement} + \text{Disagreement}} * 100$ formula has been applied on encodings that have been done by a researcher and a person other than the researcher for reliability (Miles and Huberman, 1994). The harmony between two researchers has been calculated as 79%. After reaching the result that it is valid and reliable the data have been interpreted after they have been calculated according to frequency and percentages on the electronic environment.

3. Findings and comments

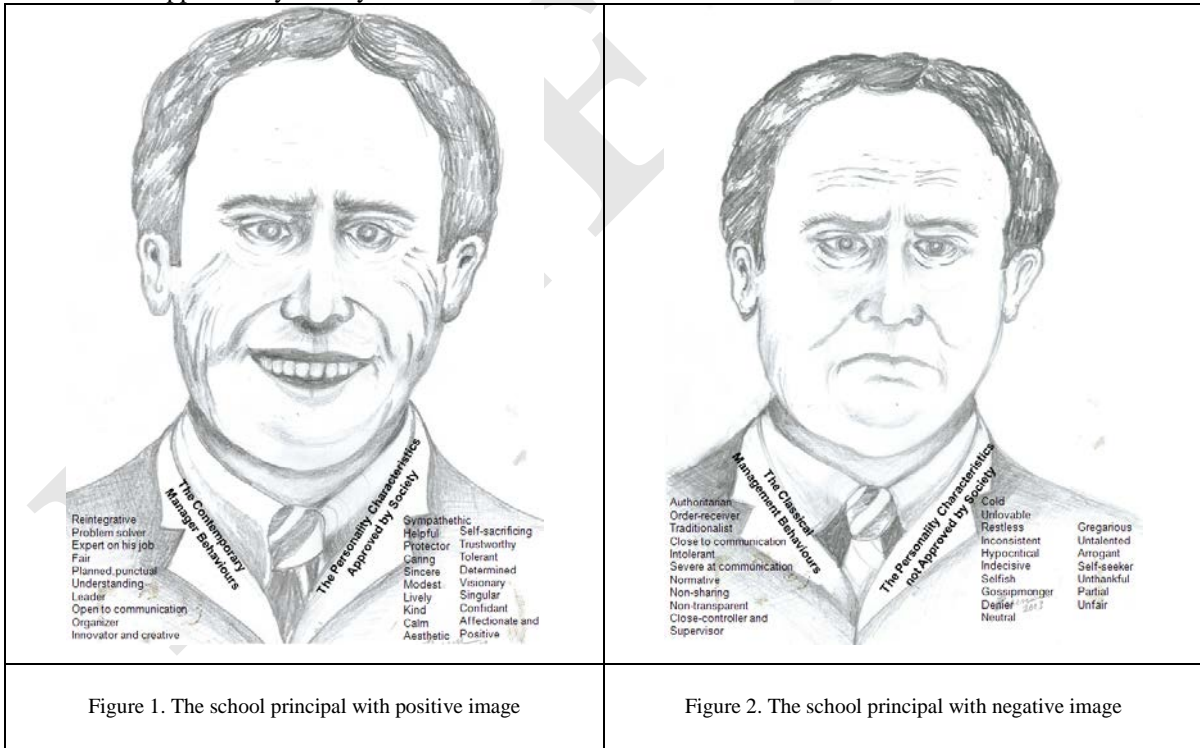
The 53 out of 127 metaphors which have been developed by the teachers have been positive, 74 metaphors out of 127 have been negative. There are 89 female teachers and 40 of them have developed positive metaphors, while 49 of them have developed negative metaphors. There are 38 male teachers and 13 of them have developed

positive metaphors, while 25 of them have developed negative metaphors. It is possible to say that the female teachers have perceived the image of school principals more positively than male teachers. The 3 kindergarten teachers have developed negative metaphors. 16 out of 41 primary school teachers have developed positive metaphors while 15 of them have developed negative metaphors. 10 high school teachers out of 21 have developed positive metaphors while 11 of them have developed negative metaphor. When examined positive and negative metaphors according to the professional seniority, there was not a significant accumulation on frequencies.

3.1. The positive image of school principals

According to teachers, most significant characteristics of school principals who have positive images are leadership, being sympathetic, helpfulness, being re-integrative, problem-solver, protector, expert, fair, caring, and sincere. The other characteristics of school principals who have positive images are being modest, lively, punctual, kind, calm, understanding, aesthetic, effective, self-sacrificing, trustworthy, tolerant, foreseeing, open to communication, determined, an organizer, singular, planned, confidant, affectionate, constructive, creative and innovative (Figure 1).

Leadership, being re-integrative, problem-solving, expertness, fairness, being planned and punctual, being understanding, effectiveness, openness to communication, being an organizer, innovativeness and creativeness are basics of the contemporary management behaviors. On the other hand, being sympathetic, helpful, protector, caring, sincere, modest, lively, kind, calm, aesthetic, self-sacrificing, trustworthy, tolerant, determined, visionary, singular, confidant, affectionate and constructive are the qualities which are approved by society and also which are seen as necessary in contemporary management theories. It has been seen that some of these positive image characteristics are about the contemporary manager behaviors, and the others are about the personality characteristics approved by society.



3.2. *The negative image of school principals*

According to teachers, most significant characteristics of school principals who have positive images are being authoritarian, order-receiver, ineffective, inconsistent, cold, unlovable, changeable, indecisive, traditionalist, and close to communication. The other characteristics of principals who have negative images are being selfish, gossipmonger, hypocritical, denier, neutral, gregarious, untalented, unfair, intolerant, arrogant, self-seeker, severe, unthankful, partial, bureaucratic, non-transparent, restless, close controller and supervisor (Figure 2).

Being authoritarian, order-receiver, traditionalist, close to communication, intolerant, severe, partial, non-transparent, close controller and supervisor are the basics of the classical management behaviors. Teachers evaluate classical management behaviors as elements of the negative image. Also being cold, unlovable and restless are characteristic features which are appropriate for classical management behavior and they are among characteristics of the negative image. In addition to them, being inconsistent, changeable, indecisive, gossipmonger, hypocritical, denier, neutral, gregarious, untalented, arrogant, self-seeker, unthankful, partial, and unfair are the personality features not approved by society. It has been seen that some of these negative image characteristics are about the classical manager behaviors, and the others are about the personality characteristics not approved by society.

4. **Result, findings and suggestions**

It has been found out that three fives of the metaphors which have been developed by teachers and which are about the image of school principals are negative, two fives are negative.

. It has been seen that some of the negative image characteristics of school principals are about the classical manager behaviors. At the same time, the school principals' having characteristics which are personality characteristics not approved by society is of great importance. As opposed to this, it has been seen that some of the positive image characteristics are about the contemporary manager behaviors. Also, showing behaviors approved by society is of great importance in school principals' having positive image.

This research shows the negative and positive image features of current images of school principals. Monroe (2003) claims that the school principals' positive or negative images affects his/her leadership style and shapes the school culture, so the findings of this research is important. The way the teachers perceive the school principals' images is seen as important in terms of defining the current situation and maintaining or changing this situation. In this sense, this research lights the way for principals. This research is expected to help principals' to analyze their current situation and change their image from negative to positive.

As any other research, this research has some limits. Firstly, it has been conducted by collecting the views of limited number of teachers, so the results of the research can be more reliable and generalizable with a larger sample. Secondly, it has been conducted with just teachers' view. Other researches can be done through collecting the views of supervisors, students and parents. With the help of this, more holistic image of school principals can be understood.

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The impact of external examinations on high school curricula: perceptions of science teachers

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Abstract

The exam for Admission to Higher Education (YGS) and exam for Placement for Undergraduate Studies (LYS) are required for admission to universities in Turkey. Yet teachers complain about the inconsistency between the contents of these exams and 12th-grade curricula. This qualitative study aims to analyse teachers' perceptions of the impact of these exams on the content of the science lessons. Using a stratified purposive sampling method, 30 teachers from high schools in North Cyprus were interviewed using a semi-structured interview technique. Content analysis was performed on interview data. Results revealed consistency between the contents of LYS and 12th-grade science curricula but inconsistency between the contents of YGS and 12th grade science curricula, as well as a negative effect on the content.

Keywords: external exams; curriculum; high schools; qualitative; content analysis; consistency.

1. Introduction

Every year in the Turkish Republic of Northern Cyprus (TRNC), thousands of 12th-grade students from public high schools or colleges who want to attend higher education programs in Turkey enter the initial phase of the matriculation examinations, which is the Examination for Admission to Higher Education (YGS). Those who score 140 and above take the second phase of these examinations called the Examination for Placement for Undergraduate Studies (LYS). Since these examinations provide students direct admission to higher education, they are crucial for teachers as well. Research by Fırat (2013) revealed that, for 96% of teacher-participants, these exams are crucial since students perceive their success on them as the success of the teachers. These matriculation examinations are prepared and administered by the Student Selection and Placement Centre (ÖSYM), which is affiliated with the Board of Higher Education (YÖK) in Turkey. Thus they are external examinations for teachers and students in North Cyprus. Similar to newspapers in England and Wales that publish league tables reporting examination results for each school (Golstein and Thomas, 1996), the media in North Cyprus also publish matriculation examination results and reproach the education system for Turkish Cypriot students' poor results on the YGS and LYS. Similarly, research by Kelecioğlu (2002) revealed discontent with the examination results among teachers and students in Turkey because they perceived inconsistency in the alignment of the YGS and LYS content with the content of school curricula. Kelecioğlu's research also verified nonalignment between the content of the Student Selection Examination (ÖSS) and the grade-12 curriculum.

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Yet, in 2002 there was only one stage in the matriculation examination, and the educational system did not implement a student-centred curriculum; moreover the course books were not revised yet. In 2005, student-centred education was first introduced in the six provinces, then in the whole country and North Cyprus. In 2010 the ÖSYM again implemented a two-stage matriculation examination. In 2012 the Turkish Ministry of Education (MEB) revised all textbooks to provide a student-centred education, thus compelling a new study.

This paper concerns secondary education for ages 15–18 and its college and multi-programmed high schools (The Department of Educational Planning and Program Development-DEPPD, 2005) In colleges in North Cyprus, there are programs for those students who want to take matriculation examinations instead of International General Certificate of Secondary Education (IGCSE) examinations or Certificate of Secondary Education (GCE) advanced (A) and advanced subsidiary (AS) levels.

The first stage of the two-stage examination introduced by the ÖSYM in 2010 was called the Examination for Admission to Higher Education (YGS), and the second stage was called the Examination for Placement for Undergraduate Studies (LYS). Included in the first stage, or YGS, were sections on Turkish language, social sciences, mathematics, and sciences, for a total of 160 questions (40 questions in each section). The examination took 160 minutes. The second stage, or LYS, consisted of five tests: LYS1 (mathematics and geometry), LYS2 (sciences), LYS3 (geography 1 and Turkish language and literature), LYS4 (history, geography 2, and philosophy), and LYS5 (foreign languages) (ÖSYM, 2006). Each LYS had varied in the number of questions and duration. In LYS2, there were 90 questions, lasting 135 minutes. This study examines YGS sciences and LYS2.

This study aimed to determine how teachers perceive the effects of the YGS and LYS on the 12th-grade science curricula with respect to content, implementation, and teacher-made assessments. More particularly, the study posed the following research question: How do teachers perceive the consistency between matriculation examinations and the content of 12th-grade science curricula?

2. Method

A qualitative research paradigm was used in this study to select samples, develop data collection tools, and analyse the data. The data was used only to describe and generalize the phenomenon in North Cyprus. The population of this study was science teachers of 12th grades in the multi-programmed public high schools and colleges in North Cyprus. The population did not include science teachers in private schools, fine arts high schools, Anatolian high school, or modern vocational technical high schools. Stratified purposive sampling was used to select samples from each school (Fraenkel & Wallen, 2006; Kuzel, 1992; Miles & Huberman, 1994; Morse, 1994). Participating teachers were required to teach 12th grade and be familiar with the content of the YGS and LYS. About 35% of teachers were purposefully selected for the samples.

The study was conducted from October to May in the 2011–2012 academic year at 16 schools in 5 districts: 4 schools in the Mağusa district, 3 schools in the Güzelyurt district, 2 schools in the İskele district, 4 schools in the Lefkoşa district, and 3 schools in the Girne district. Thirty-three science teachers were selected, but only 30 teachers could be interviewed, resulting in a return rate of 91%. Among these 30 science teachers, there were 12 physics (10 males, 2 females), 9 chemistry (5 males, 4 females), and 9 biology (2 males, 7 females) teachers. Twenty-four of these teachers taught in public high schools and six of them in colleges.

Data were collected using a semi-structured interview technique (Stewart & Cash, 1985). Two semi-structured open-ended questions were prepared by the researchers and used to collect information about the

participants' perceptions of the effect of external exams on curricula. During the design phase, the interview questions were piloted with seven teachers from two different schools in two different regions. The responses of the interviewees were transcribed and analysed, and then the questions were modified to ensure consistency in responses for their reliability (Sanders, 1994, p. 153). Moreover, three field experts were consulted about the content validity of the questions (Sanders, 1994, p. 145).

Consent forms given to teachers included the aim of the study, research questions, and information about the researchers. Appointments were made one or two days before the interviews. The teachers' responses were recorded using an audio recording device to eliminate the possibility of misunderstanding or loss of data. Data were collected from one-on-one interviews at a time convenient to the participants. Interviews were carried out in the respondents' native language, Turkish.

Conventional content analysis technique was used to analyse the data (Marshall & Rossman, 2011; Miles & Huberman, 1994). Data were analysed based on the concepts driven by the semi-structured open-ended questions. These concepts comprised the codes in the analysis (Miles & Huberman, 1994, p. 56). For research findings, teacher responses from interviews were often quoted. The names of the interviewees were not used in the direct quotations; instead, code names—such as T1, T2, T3 for teachers, C for colleges, and P for public high schools—were used. In addition, the frequency and percentage of repeated comments by the teachers and students were calculated and expressed as frequencies and percentages in the data analysis.

3. Findings

Teachers were asked the following two questions:

1. What do you think about the consistency between the content of the curriculum and the content of the matriculation examinations?
2. How do you regulate the consistency between the content of the curriculum and the content of the matriculation examinations?

Content analysis was performed on the teachers' responses related to the consistency of the exams' content with that of the 12th-grade curriculum in order to answer Question 1.

Sixty-seven percent of the science teachers perceived consistency between the contents of the YGS and the 9th-, 10th-, and 11th-grade textbooks, as well as between the contents of the LYS and the 12th-grade physics, chemistry, and biology textbooks. They said that a great degree of consistency between the content of the test question and that of the textbook indicated consistency. Most of them noted a significant correspondence in content between the YGS and 9th-, 10th-, and 11th-grade science textbooks, but very little match between the YGS and 12th-grade science textbooks. They thought the content of the LYS corresponded significantly with the 12th-grade science textbooks. The following interview excerpts are examples of such opinions.

TP16: Ninety percent of YGS covers 9th-, 10th, and 11th grade topics, so it largely overlaps with them. LYS covers 12th-grade topics at the same rate. But the YGS 12, I can say that the YGS's content coverage of 12th-grade topics is very low.

TP14: Now, 9th- and 10th-grade topics are mostly in the YGS. LYS has topics of 11th and 12th grades. Because of that, in 12th grade, students forget the topics they studied in the 9th grade. That's why they

start to go to *dersane*[†], because they've already forgotten the topics studied in the 9th and 10th grades. Plus, we hardly have time for revisions. I think YGS content overlaps with 9th- and 10th-grade content, and LYS content with 11th- and 12th- grades content mostly.

On the other hand, 23% of the science teachers perceived significant inconsistency between the contents of the YGS, LYS, and the 12th-grade science textbooks. They thought that the content of the textbooks was not aligned with the contents of the tests. The test topics were from various grades and did not include a large amount of the topics in the 12th-grade textbooks, which was the reason they perceived inconsistency in the contents. Transcript excerpts elaborate on these observations:

TP12: Till two, three years ago, they were entirely consistent, corresponding to the curriculum. But the current books, they changed them, you know, these newly released books. I do not know whether you've checked their contents or not, but if you looked at the content, lots of differences occurred. These books in 12th grade are not sufficient. The books we used 2–3 years ago were much better. For me, the new books, in terms of content, are inadequate. They do not match the exams. What questions will be on the exam is another mystery.

TP4: If I'm not mistaken, this system started two or three year ago. Not improved yet. Thus, the first stage, if we consider the first stage of the exam [YGS], topics do not include the 12th-grade topics. In the second stage, there are a couple of topics from 12th grade, but not all. For example, in the book there are at least 20 topics, but they ask about only 3 of them. When you check, you see that they ask at least 10 question from the same 3 topics. However, these 10 questions can be on 10 different topics. There are also questions that are not part of the 12th-grade curriculum, so we have to review them in class. Because they were from the books of the previous years.

Ten percent of the science teachers were indecisive about whether there was consistency or inconsistency between the contents of the tests and the textbooks. They said that there was no clear distinction among the topics. According to them, some of the topics were common in all high school science textbooks. There were questions on the YGS or LYS from these topics. TP8 said,

There is such an issue, you cannot distinguish some topics as this is 10th-grade topic and this is 12th-grade topic. They are common topics. You can find them in different grades' textbooks. You have it in 9th grade and you have it in 12th-grade textbooks as well. So can we say, study this for the YGS and study this for the LYS? We can't. So we advise students to study all for both stages of the exams.

The content of the participants' responses were further analyzed to explore how teachers regulated curricula for consistency with exams and found that 7% of the science teachers said that they could not cover all the topics in the textbooks because of limited contact hours. They said that the many official holidays during the

[†] Institutions providing private education to prepare students for external examinations are called *dersane*.

academic year made for a shortage of time. Moreover, 12th-grade students are given a 30-day official leave by the MEB just before these examinations. As one teacher (TP13) noted, “We can’t finish the books. A lot of things to cover, but not enough time for all.” Another (TP3) said,

The length of academic year is not enough to cover all. We have many holidays. We have Turkish Cypriots’ holidays, we have Turkey’s holidays. In addition to this, the directorate of secondary education gives a 30-day official leave to 12th-grade students to stay at home and study for these exams. Then how can we finish the book?

Ten percent of the teachers said they follow the order in the book, never make any addition or deletion to the content, but put more emphasis on the chapters and topics that were more likely to be asked about in these exams. Eighty-three percent of the teachers said that they change the order of the chapters of the topics according to their probability of being covered in the examinations. They said that they gave priority to the topics that had a high probability and covered those first. Some said they did so upon the students’ request. When students insisted, they focused on the topic(s) asked in the previous examinations. The following teachers explain this adaptation:

TC27: There are important parts. If no question was asked from that part in the [previous] exam, students don’t study that part. There are parts I think are important, so I give priority to them. So the exams are limiting us. We focus on the topics they ask about in the exams. Students also put pressure on us. They don’t want to listen to or learn anything that is not asked in these exams. We have no other choice. To control the class, we do what they want.

TP23: We still continue with the old method. We look at the exam questions. For example, questions such as were asked last year, and accordingly we adjust our methods, accordingly we arrange the topics. So close to the time of the exam, we base our curriculum on the YGS and LYS toward the exam. We look at the questions and make our syllabus. So, for example, together with colleagues we decide which topics will be the focus, which ones will be skipped, and which ones will not be covered at all. Yet we do this every year because they can change the topics in the exams. But this rarely happens.

Another way teachers regulated the curricula was to abolish the laboratory activities of these lessons. About 94% of science teachers stated that they did not do lab work because of time constraints. Another reason teachers said they stopped including laboratory activities was the lack of laboratory materials and instruments and the bad conditions of laboratories in public high schools and colleges. Only about 6% of science teachers claimed that they do laboratory activities in public high schools, but no more than twice in an academic year. As one participant (T20) explained,

The questions on the test were not about labs. They are all about theories. Why should we do it then? We don’t have enough time during the academic year to cover all. We finish schools at noon, at one o’clock. No school in the afternoon. If we try to do labs as well, then we cannot finish the book.

Another teacher (TP21) added,

We do it but frankly we do one or two in an academic year. Why? We don't have enough materials, equipment. Most of the furniture and equipment were broken. Or you do one and all students watch. It should be hands-on, don't you agree?

4. Discussion and Conclusion

It is primarily teachers who make decisions about curricula content and the length of time to spend on that content (Porter, 2006). According to Posner (2004), several studies revealed a close connection between instruction and standardized tests (Madaus & Kellagher, 1992; Stodolsky, 1988). For that reason, teachers might be forced by the students and the parents, or feel obliged, to teach toward tests since admission to higher education depends on scores on these tests (Posner, 2004). Moreover, such a connection between testing and learning was addressed by a number of studies in the assessment literature; Alderson and Wall (1993) used the term “wash-back effect” to refer to this impact of the tests on teaching. In this study, the perceptions of science teachers revealed that external exams had this wash-back effect on teaching, as teachers said they emphasize the content likely to be covered and eliminate or skip the content that is not. Moreover, they not only adjusted accordingly the content of the instruction but also contact hours. For example, they abolished the laboratory studies of the science lessons. Mamlok-Naaman and Barnea (2012) cited a number of studies emphasizing the benefits of laboratory activities in science education, namely, “facilitating the attainment of cognitive, affective, and practical goals” (p. 49). However, the findings in this study revealed that the laboratory activities of physics, chemistry, and biology lessons were abolished. Considering the benefits mentioned by Mamlok-Naaman and Barnea, re-addition of these activities to high school and college science curricula is highly recommended. According to Posner (2004), teachers most of the time experienced the dilemma of coverage versus mastery of the contents. This study's participants mostly sacrificed mastery (as well as laboratory studies) for the coverage of content. More emphasis was placed on “knowing that” (the subject matter) instead of “knowing how” (the skills) (Ryle, 1949).

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The implement of the sub-district virtue school project

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Abstract

This research is a Mixed Method Research. Its purposes are 1) to study processing condition of the The Sub-district Virtue School Project and 2) to be a guideline of the project. This study is separated into 3 parts. First part, researcher collects information about processing condition of 3 schools where 47 directors and teachers are questioned by a questionnaire. An instant application is used to analyze those results in order to explore the percentage and deviation. Next part, Semi structured interview and normal interview are used to look for the most effective school that perfectly follow the researching plan in order to improve the plan. Final part, Focus Group which takes effective schools into a meeting to share how they process in order to find the better solution is brought to analyze the qualitative information. The research findings:

1) The processing condition of The Sub-district Virtue School Project is in the “BEST” condition. Plus, when looking deeply to each area, nearly every area such as surrounding, planning and learning management is in the best condition except only behaving and processing

2) Processing guidelines of The Sub-district Virtue School Project

2.1) In planning area, the process accentuates the importance of the project in vital areas; for example, household, temple, school and local administration. It also increases more teachers and quality group to give their attention when planning the plan.

2.2) In learning management, the curriculum is improved to be more realistic and aims to learn a real-life lesson and ICT world.

2.3) Surrounding management is aimed to improve a school environment to be beautiful and safe by gathering all sources from local area by letting the director and teachers to be the first role-model.

2.4) Behaving students by using the participation of household, temple and school, teachers need to take Buddhism up to be the main part of this process.

2.5) Results of the project needs to mainly consider about the advantage and disadvantage of student, teacher, director and community.

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Keywords: Implementation, The Sub-district Virtue School Project

GENERAL BACKGROUND AND PROBLEM

The Ministry of education appoints the trend of education development by focusing on student-center learning method, dissemination studying chance to rural area for offering an education to be one of the people's powers. (Bureau of Policy and Strategy, Ministry of Education, 2012) But, the report of World Bank shows that Thai education efficiency trends to be lower. Most schools are located in rural area, and having many small-side schools causes the ineffective use of country budget if considering about the result of National Test. (Office of the Basic Education Commission (OBEC), Ministry of Education, 2011) Therefore, OBEC aims to terminate the small-side schools in order to spend more budget to only one school in each district. This goal is set to achieve before 2018. (Office of the Education Council, 2011) The Sub-district Virtue School Project eventually set to develop the quality of school in district area.

Nowadays the "ONE SCHOOL ONE DISTRICT" project changes its name to Quality Sri-Tambon (virtue) School in order to add more moral and ethical activities. (OBEC, 2012) Every participating school will be given enough amount of budget to support them to be quality school which means having good lessons and activities for student and also coordinating with locals and other schools.

School management by basing on The Sub-district Virtue School Project accordingly aims to a coordinating management. (Cohen, John M. and Uphoff, Norman T, 1980) school staff and committee including every part of a community need to be united to organize teaching, lessons in order to lead them to an effective education. Thailand Productivity Institute (2007) presents a managerial guideline by using PDCA Cycle which conforms to Yoshio Kondo's theory about Demming Cycle consisting of 4 steps. (Plan, Do, Check, Action)

To sum up, researcher, one of the teacher in wannabe Quality Sri-Tambon School, is interested in studying condition and guideline of The Sub-district Virtue School Project which will lead us to a better information for planning and reaching the goal.

RESEARCH DESIGN

This research uses Mixed Method Research design. There will be a combination of quantitative and qualitative methods which will start from the quantitative one and bring that result to analyze which school to do the qualitative one consecutively. Also, qualitative method is higher priority.

RESEARCH PARTICIPANTS

Period 1 - Selected schools in the third generation of the project are under Roi-Et Education Service office, area 2. There are 3 school, 44 directors and teachers participating.

Period 2 – 15 of directors, teachers, OBEC committees, Buddhist representatives, students and parents from the most effective Nongpakkad School (made up name) are participating.

Period 3 – Directors and teachers of participated schools and practitioners from Roi-Et Education Service office, area 2 are overall 11 persons.

RESERCH INSTRUMENT

Period 1 - Questionnaire asking about processing condition of The Sub-district Virtue School Project

Period 2 – Interview record about how to process the project

Period 3 – Concept idea from face-to-face interview trying to make participants share their ideas

DATA ANALYSIS

Period 1 – Analyzed by instant computer program which calculates numbers from questionnaires – part 1 is finding percentage and frequency and part 2 is about showing \bar{X} and S.D. There are 5 levels of calculations

Period 2 – Using Analytic induction method

Period 3 – Analyzed and decode the data by qualitative research method

SUMMARY

SUMMARY – the summed up results on the research purposes are as followed

1) By PDCA, the processing condition of The Sub-district Virtue School Project is in the BEST condition following by , learning management, behaving and result.

1.1) Planning – the most effective result is that each school has an purposed strategy, and the ineffective one is the participants do not consider what it needs to the project together.

1.2) Learning management – three most effective results are Teacher Training, participants can apply their school curriculum, school supports student to study ICT and folk wisdom. Plus, the most ineffective result is supporting education by various learning innovations.

1.3) – the highest percentage result is postings and posters, porting in the school area, look beautiful and modern, and the most ineffective result is conforming learning recourse to learning lesson.

1.4) Behaving – the most effective result is the successful meeting about how to improve students behavior, and the most in effective result is rarely real-life activities.

1.5) Results – the highest percentage is students participate in improving social and environmental activities which arrange by school and community, and the lowest percentage is the number of student in school does not increase.

2) The Sub-district Virtue School Project process 2.1) Planning – School should participate Buddhist training which arranges by community or temple. Teacher should be also attend the training themselves in order to improve their vision about developing school. School should do the MOU with local district office, and after having done that school check the solution unofficially by letting experts control. 2.2) Learning Management -

School curriculum should add more real-life activity basing on each community, ICT lab and learning through Klaikangwon satellite TV. Also, those activities should start right from primary level. 2.3) Managerial Environment – With school and student participating, environment in school should be clean, beautiful and safe. Full-option learning center should be set around the place by using the budget from community. 2.4) Behaving - The goal is to plant four international goodness which are clean, nice and tidy, punctual and healthy. Plus, student should be planted three fundamental kindnesses which are self-discipline, respectful and patient by arranging a Buddhist classroom. Coordinating with parents is important to build the student inspiration. 2.5) Solution – Getting brand-new school with good and nice environment, getting brand-new teacher with modern teaching method and kindness, getting brand-new student with good kindness and having dignified community.

RESEARCH RESULTS

Research finds that The Sub-district Virtue School Project process following guideline in all areas (planning, learning management, managerial environment, behaving and solution) is in the BEST condition. The result shows that the project under OBEC conforms to the need of directors, teachers and community. In addition, the result also conforms to the study of factors reflecting school management of Patiwat Janpasit (2008). One of his quotation is “everybody wants to see their school and student reaching the word quality.”

If look deeply to each area, planning will be the most effective area, although when looking deeper to each clause, coordination between community and school staff is the most ineffective area. It is because the analyzing process has finished when planning the plan (no community in the meeting). So, the solution is the addition of revising project vision and integration. It goes the same way with an interview of a school director (2013) what quotes “revising plan and adding activities to the project are simple to do because The Sub-district Virtue School Project budget is separated to the previous project”

Learning Activity – In the whole image, the process is in the BEST condition. When looking deeply to clauses, it indicates that Learning by Innovation does not reach standard because school and OBEC only pay a lot attention to Buddhist training and ignore a learning innovation development. Teacher, so, does have various and enough skills and knowledge about a learning innovation. Like in a teacher’s interview (2013), teachers are taken to Buddhist training, but no one talks about learning activity.

Environmental Management – the whole process is in the BEST condition. When looking deeply into clause, it indicates that Learning Resource Development is not in good condition because developing the resource need school staff to run it. Also, school staff has enough busy hands because they have to response lots of work. According with a meeting interview (2013), a successful director says that in one person, there are ton of works to do, so one person responses too much works.

Behaving – The whole process in in the BEST condition. In the same time, real-life skills is not in standard because preparing student for the national test already take so much time, so there is not enough room for any other activities. Hass, Glen. (1980) says that time is one of the Learning Resource; therefore school should give time to student to learn more than anything. Learning hours should be suitable for what student study, and teacher and director needs are less priority.

Solution – the whole practice is in the BEST condition which school and community improvement activities are best participated by students because it makes them take actions. Yin Cheong Cheng. (1996) says that improving school surrounding is one factor that can show the relationship between local and school, one of

school effectiveness. Quantity and quality of people take a lot action in school activity. For example, school support an activity about increasing students' number, but the population structure is decreasing as OBEC (2010) reports that the birth rate is decreasing about 200,000 people per year.

SUGGESTIONS FOR THE STUDY

Researcher brings 5 areas of The Sub-district Virtue School Project not reaching the Conceptual framework to talk as followed

1) Planning – It shows that school staff and locals do not coordinate to each other well enough, so director should be the one who are between them and listen to all comments and ideas. At the same time, director has to consider building a shared vision.

2) Learning Activity – Learning Innovation does not reach the goal, so besides, the Buddhist training, school should develop teaching and learning ability as well.

3) Environmental Management – it does not conform to any learning skills because school staff is not enough for responding. So, OBEC should send more hands to The Sub-district Virtue School Project .

4) Behaving – It shows that real-life learning activity is the most ineffective activity because there is no enough time for all 8 subjects. So, director and teacher should adjust and apply normal knowledge into Buddhist training in the same time.

5) Solution – The number of student is not increasing because the birth rate decreases. School should look more to near villages or communities in order to really be the learning center of district.

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The importance of vocabulary conceptualization in digital dictionary software development

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Abstract

While the world is becoming global, one language is rapidly spreading all over the world. Determiners of the answers to these questions will be software engineers and software specialists working on language. If the specialists working on informatics are encouraged to work on language and effective software are developed in this field, then, mastering the mother tongue will be enough to be an effective citizen in the global world. If we look through the existing software, we can see that search engines on the internet are started to be designed to translate a text written in a foreign language into one's mother tongue. Moreover, the digital dictionaries on the internet are developing rapidly. However, in these dictionaries, the main focus is on the meanings of the words. But this is not enough and works should be performed on the conceptualization of the word. It is very common in our language for words to be used with their connotative meanings. Accordingly, dictionaries should help to sort out the main and connotative meanings of the words because languages were born out of the necessities to express the existence of objects. Moreover, there are dialectical differences among the speakers of the same language. Within the same nation, the same word may convey different meanings. Overlooking the cultural differences and using general words to express objects in one language will restrict the power of the language and make the communication superficial. Yet, the software engineers and specialists who will develop such software should be knowledgeable about the characteristics of our language. Therefore, software to be developed in the field of digital dictionary preparation should be projected and encouraged. In this paper, we want to draw the attention to the importance of informing software designers who will develop dictionary software to make translation from Turkish to Turkish or to another language about the conceptual meaning of the words apart from their meanings and to the importance of supporting research into this field.

Keywords: Digital Dictionary, Computer Assisted Language Learning, Computer Based Learning

1. Introduction

This century is the age of information and communication. Easiness of having access to information and speed of information sharing has facilitated the works of researchers in conducting scientific research particularly in developing countries. Foreign language competency can be a barrier hindering researchers from enhancing their qualifications and sharing their works with the world. Development of software enabling researchers to use their mother tongue will help them to broaden their horizons and increase the number of studies. This support can be

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provided by software engineers who can develop a search engine, digital dictionary or translation software. But for such tools to be effective, these engineers should be knowledgeable about the features of the language.

Performing translations through general dictionaries or having a vocabulary repertoire dominated by words not conceptualized may solely serve the daily life needs; they are not much helpful in creating, developing, maturing the ideas or problem solving. Vocabulary repertoire of people is determined by the number of words they can conceptualize. Development of digital dictionaries without a conceptualized vocabulary repertoire may lead to superficiality in scientists' explaining their works and understanding other scientific studies.

2. Cognitive Evolution of Human

Historical periods are analyzed as prehistory and history. The division between these two periods is the invention of writing. The scientific evolution of human starting with the pictures they drew on the walls of caves proceeded with the invention of paper, printing press, telegraph, telephone, radio, television and finally with the invention of computer technologies in the last century. Cognitive development of human beings has come up to now with further developments such as internet, satellites, laptops, mobile phones, etc., see Fig 1 (Sarmaşık, 2012).

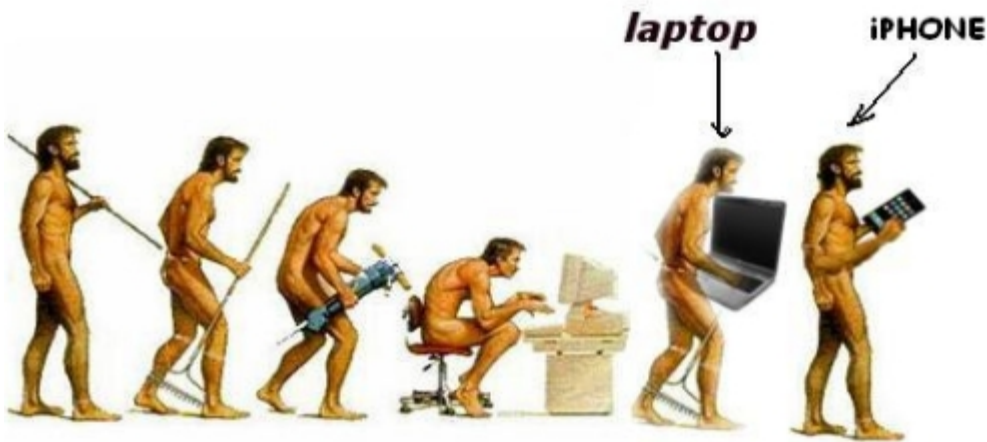


Fig. 1. cognitive evolution of human

2.1. Future of the Cognitive Evolution of Humans

The main question to be answered today is how the cognitive development of humans will go on. The new patterns and mechanisms that will emerge in future may exclude the individuals lacking the required skills or put them into position of someone not producing but consuming information (Akpınar, 2005).

2.2. Technological Developments

The computer screen will be replaced by digital glasses or lenses that have GPRS, chronometer and can take photos and record videos, see Fig 2.a & b. Such tools are already on the market.

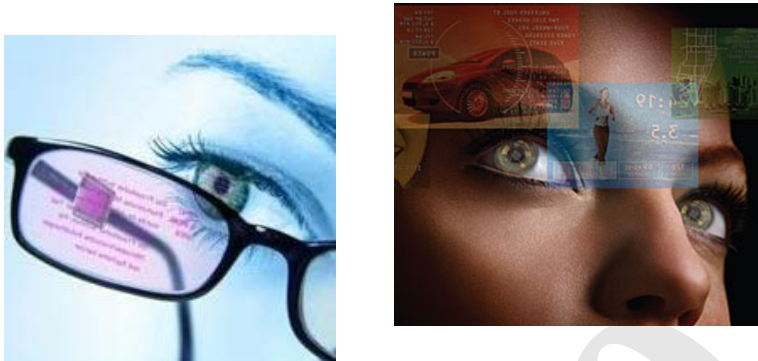


Fig. 2. (a) digital glasses; (b) digital lenses

We can translate the texts written in our mother tongue into other languages through free digital dictionaries and search engines in internet. This may help the elimination of dependence on one language in the globalized world and in the near future, software programs that will enable us to translate spoken or written foreign languages into our language will make it possible for us to carry out spoken or written communication in any language.

3. Digital Dictionary Software and Meaning in Word

The already existing digital dictionaries mostly focus on the main meanings of words. However, words are living organisms like languages. Words may attain new meanings different from their main meanings over time.

3.1. Meaning in Word

The primary and general meaning conveyed by a word is called its real meaning. The meaning of a word given in a dictionary is usually its primary meaning. The real meaning of a word is its common meaning known by everyone. Different meanings emerging in association with the real meaning over time are called auxiliary meanings. Apart from its real meaning, a word may attain auxiliary meanings over time.

3.2. Word Conceptualization

Word conceptualization means understanding what main and auxiliary meanings of a word. "Conceptualization is related to conception and sorting out of emotional and intellectual worlds of words. Every word has its own emotional and intellectual worlds emerging from its historical evolution. Penetrating into emotional and intellectual worlds of words requires chronological and spontaneous thinking and researching. For instance: In order to conceptualize the world of 'stone', there is a need, on one hand, to set out a chronological journey in which its functions in hunting, defending, sheltering and communication are considered and on the

other hand, set out a spontaneous journey in which its functions in the fields such as art, literature, shelter, offense, transportation, secrecy should be considered (Coşkun, 2008)”

Words can have meanings on their own and may attain new meanings depending on the context in which they are used. Therefore, the digital dictionary software programs to be developed should be arranged in such a way as to include examples for their usages.

4. Result

The new generation consist of individuals not crushed under the unknown, because having access to any topic over the internet and also having the skill of using technologies better than their instructors. So instructors should redesign the education system for this new generation should be able to determine the needs of future and arouse the curiosity of researching information by making use of the opportunities of information technologies. In order to be able to supply such information systems, there is a need to make great investments in information technologies and software development issues. The present paper talks about why software engineers and specialists should be aware of the importance of word conceptualization for information technologies. In this way, software specialists should be able to develop digital dictionaries and translation software that can translate the sentence by considering the meanings of the words within their context. Hence, we need to direct software engineers and specialists towards to such projects.

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Figure1. <http://ucnoktaforizma.wordpress.com/evrim/bizde-evrim-dusuncesi-neden-gelisemedi/evrim-2/>

Figure2(a). <http://www.kagitpil.com/2268-bekledigim-sey-yakin-oled-gozluk.html#axzz22NssO9O9>

Figure2(b). <http://fotogaleri.ntvmsnbc.com/gelecegi-sekillendirecek-teknoloji-artirilmis-gerceklik.html?position=1>

4th International Conference on New Horizons in Education

The importance of etymological studies in Turkish language education: comparative study of the word “bacanak (sister in law's husband)” in Turkish dialects

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Abstract

One of the issues faced through students in the Turkish Language and Literature classes in high schools is the lack of knowledge germane to the origins of words. As such, students are estranged from the meaning of words of their own languages and fall into the clutches of cultural degeneration. In the study, etymological studies are rendered in a comparative way with an eye to ensure the teachers to convey information more easily to the students thereof. Also in this study, it is aimed to increase the interest of students to their ethnic origin through inclusion of information vis a vis Turkish dialects.

Keywords: Turkish Language, Education, Etymological, Dialects.

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1. Introduction

Kinship ties are very substantial in Turkish society. Turks, throughout the history, have underlined the importance of solidarity between relatives and reflected the most beautiful examples thereof to social life. Foregoing developments naturally affect the Turkish language and the presence of rich vocabulary incident to names of family members stand out.

Much as, many societies lack family names even for close relatives such as "grandfather" and "grandmother" Turks have given names even to family members who may be regarded as distant relatives. So much so that, it is possible to classify such names under the categories such as "lady's relatives, man's relatives and relationships arising due to marriage".

The widespread utilization of the names of family members also applies to Turkish dialects and accents. The best dialect that has protected the family names in a rich manner is Kazakh Turkish. We can easily reach the element causing foregoing richness should we consider the fact that Kazakhs are the last representatives of nomadic life style. In addition, there are also, unfortunately, some concepts we have lost under the influence of Western languages.

2. Etymological Analysis

Etymological searches of many words employed in the Turkish language have been made and substantial information has been provided to researchers in this field. I want to examine the word "bacanak (sister in law's husband)" which is a name given to some family members due to marriage.

2.1. Studies Of The Linguists

The meaning of the word "bacanak (sister in law's husband)" in *Büyük Türkçe Sözlük* (Great Turkish Dictionary) published by TDK (Turkish Language Association) is given as: 1. Each of the men whose wives are sibling, 2 Friend, crony. (TDK, 1998:190). We will focus on the first meaning in our study.

We see the word "bacanak (sister in law's husband)" in *Diwan Lugat at-Turk*, the first known dictionary of Turkish Language authored through Mahmud al-Kashgari as "namija (?)". Mahmud al-Kashgari has given the definition of this word as "woman's sister's husband, bacanak" and stated that the origin of the word is from the Chigil language. (Mahmud al-Kashgari, 2006:446-2) I have only met this word as "namija" only in *Diwan Lugat at-Turk* in the researches conducted through me. I assume that the question mark next to the word may denote that Mahmud al-Kashgari is also not sure the origin of the word.

Süer Eker has stated that presence of "n-" at the beginning of the words save question words is unusual in the Turkish language and that the word *namija* is one of the few words with "n" used at the beginning of a word in *Diwan Lugat at-Turk*. According to Clauson this word is a word from the Sogdian language due to the sound of "j". (Eker, 2009:290)

Prof. Dr. Tuncer Gülensoy has mentioned the origin of the word in his etymological dictionary styled "*Köken Bilgisi Sözlüğü* (Turkish etymology dictionary)" and included the word into Turkish language spoken in the Republic of Turkey. He also showed that + (lık) suffix could be added to the root word to use it as *bacanak+ (lık)*. The word *bacanak* is also used as *bacınak* in Anatolian dialects. Gülensoy, who has itemized the use of the word in dialects Dialects has provided theof "*bacanak*" as follows:

When we examine the foregoing etymological analysis we can see the changes in cited sounds. However, Gülensoy did not provide information as regards the function of the "NAK" suffix and evaluated the word as "*bâcı (*bâça) +nak*". Given this fact, it would be possible to consider that word the actually rooted from the word

*baça<bâca<bâci' denoting sister and showed changes which means that "baça" is the hypothetical root of the foregoing word.

Tuncer Gülensoy itemized the use of "bacanak" in other dialects as follows:

An.ağl. : bacınak (DS. II, 458)
 Bacanağ (DAO, 55)
 Bacınak(İM.)
 Baca (Trkm.)
 Bacanak (Osm.) (> Blg.Bacanak)
 Bacanağ (Az.)
 Baca (Blk., TatK.)
 Baja (Kırg., Nog., Kklp.)
 Paca (Te.)
 Pācnak (Terc.)
 Paça (Kum.)
 Pušana (Çuv.)
 (Gülensoy 2006:100)

Furthermore, Gülensoy has indicated that the word in question is employed as badžanak in Serbian and Bulgarian; bacanağ in Kurdish, bacenax in Zazaki, bācenāk in Persian. (Gülensoy 2006:100)

Hasan Eren's has defined the word in his work styled Türk Dili Etimolojik Sözlüğü (Turkish Etymological Dictionary) as " a man's wife's sister's husband" and expressed that it is used as bacınak in dialects; and evaluated the word in the form of baca+nak and described the "-nak" suffix as diminutive suffix. He has also reported that there is great proximity in terms of meaning and a profound analogy in terms of sound between the words baca "bacanak" and bacı "sister" used in Turkish dialects. (Eren, 1991:31) Thus, we can say that Eren agrees with Tuncer Gülensoy. Hasan Eren, in addition to Gülensoy'un etymology, has described the "-nak" suffix as diminutive suffix.

Another etymological analysis belongs to Poppovskaya. Poppovskaya has reflected the analysis thereof as follows: <bacı-baca+nak. (İRLTJa 66-67). Poppovskaya desired to combine baca and bacı forms, but Sevortyan has opposed to this combination.

Sevan Nişanyan the author of Çağdaş Türkçenin Etimolojik Sözlüğü (Etymological Dictionary of Contemporary Turkish) has included the word "bacanak" in his dictionary. According to Nişanyan it is uncertain whether the word meaning "Each of the men whose wives are sibling" is Turkish:

Tur: baca / paca [XV.+ Present] (Nişanyan stated that the word belonged to the Cagatay language of the 15th century)

Sister, elder-sister - Moğ.baca.aa (The word has the same meaning in Mongolian)

Nişanyan has stated that the word relationship of bacı (sister) and the meaning of the suffix "-nak" as obscure. Nishanyan has a different opinion than Hasan Eren with this view. (Nişanyan.2002: 31)

We can see the word in question in the work styled "Halk Ağzından Derleme Sözlüğü as (Supplement Dictionary from People's Dialects in Turkey)" as follows: bacınak: Bacanak (Karahisar *Tavas- Denizli; Hamzabali *Bozdoğan- Aydın) (TDK, 2009:458)

The etymology of "bacanak" in Ötüken Türkçe Sözlük (Ötüken Turkish Dictionary) is as follows: bacı/baca (sister)> bacı-nak > baca-nak (Ötüken Turkish Dictionary, Volume.I, page.416)

In Selcuk Kırbaç and Ebubekir Sofoğlu's articles styled "Gora Dilinde Türkçe Kelimeler (Turkish words in Gora language)" it is reported that a large part of the relationship names utilized in the Gora language has passed from the Turkish language. "Badžanak" word is the equivalent of the word the word "bacanak" in the Turkish language. (Kırbaç, Sofoğlu>37)

Celal Soydan's reveals in his research article "Urdu Dilinde Akrabalık Terimleri ve Müslüman Hint Aile Yapısı (Relationship Terms in Urdu language and Formation of Muslim Indian Family)" that "bacanak" is used in the form of sârhü (r.), hamzulf (v.) in Urdu.

The word "bacanak" in Russian is used as "Svoya". If we look at the use of the word in Turkish language, we can see that the last sounds are similar. (Ministry of Culture, 1991:42)

In Rıdvan Öztürk's article named " Kıbrıs Rumcasındaki Türkçe ve Türkçe Yolu ile Girmiş Alıntı Kelimeler (Turkish words in the Cypriot Greek Language and borrowed words that have entered by the way of Turkish Language)" reports that Language for relationships in general does not reflect first degree of kinship and there are also words used symbolically. "Bacanak" is one of these words and a word that has entered Cypriot Greek Language from Turkish, and is used in the form of "pajanákhis". (Öztürk: 12)

Orhan Güdül Kutalmış and Mehran Bahari who have prepared the research article styled " Türkçe İnsan Adları ve Hayvan Kökenleri (Turkish Human and Animal Origins of Names)" have reported the word "bacanak" in a way that has not been seen until present. According to the research the meaning of the word Peçenek is as follows: 1 Pasture, 2 Bacanak. (Kutalmış, Bahari 2003:221)

In Mustafa Yağbasan's article named "Kültürlerarası Etkileşim Bağlamında Türkçe ve Yunancadaki Ortak Sözcüğün Değerlendirilmesi (The Evaluation Of The Joint Vocabulary In Turkish And Greek In Point Of The Cross-Cultural Interaction)" it is reported that there are 5000-7000 Turkish words in Greek but no noteworthy researches have been carried out due to the negative attitudes of Greek scholars against Turks. "bacanak" which is one of these words is among naming (address) words and the use of the word in Greek is "bacanákis". (Yağbasan, 7)

A researcher named Elif Cora has given the equivalent of the word bacanak as "Silf" in her master thesis styled " Burhân-i Katı'da Yer Alan Türkçe Sözcükler ve Deyimler Dizini (Index of Turkish words and expressions in Burhan-i Kati)". Burhan-i Kati is a Persian to Persian dictionary written by Muhammed Hüseyin b. Halef et- Tebrizî. Use of the word "uht" for the word bacı meaning sister in the same dictionary makes me think if the use of the word bacanak is the same as the one in Turkish language. (Cora, 2007:24)

Fikret Yıldırım in his master's thesis named Kaşgar ve Yarkend Ağzı Sözlüğü (Dictionary of Kashgar and Yarkend dialects), has given the word bacanak as baca and defined it as a person's wife's sister's husband, bacanak. Equivalent of the word in Mongolian has also been stated as baca. (Yıldırım, 2007:97)

This word which we often use in our daily lives almost can never be seen in the periods when Ottoman Turkish was used. I screened almost two hundred works of Classical Ottoman (Divan) Literature but I did not come across this word in any one of them. Some of these works of Classical Ottoman (Divan) Literature that I screened are as follows: Adlî, Adnî, Ahmet Paşa, Ahmedî, Amrî, Antepli Aynî, Avnî, Karamanlı Aynî, Bâkî, Bâlî, Behiştî, Es'ad, Fasîhî, Fatîh, Figânî, Fuzûlî, Gârîkî, Hâlet Efendi, Hayâlî Bey, Hayretî, Hüsn ü Aşk (Şeyh Gâlib), Karamanlı Nizâmî, Lebîb, Leylâ Hanım, Leylâ ü Mecnûn (Fuzûlî), Mekkî, Mesîhî, Mihrî Hatun, Mirzazâde Sâlim, Nakşî, Nâmî, Nâşid, Nesîmî, Neşâtî, Nedîm, Necâtî Bey, Revânî, Sâkî Mustafa Dede, Sâmi, Bâhti, Süheylî, Şeyhî, Usûlî, Vâsî, Yahyâ Bey Divanı... I did not also come across this word in books like Misallî Büyük Türkçe Sözlük (The Comprehensive Turkish Dictionary with Examples), Mazmunlar (Mazmoons (topics/issues) book in the Old Turkish Literature, Ansiklopedik Divan Şiiri Sözlüğü (Encyclopedic Dictionary of Divan poetry), Yeni Tarama Sözlüğü (New Dictionary Glossary) of Turkish Language Association, Dede Korkut stories and concise glossary of Muhâkemetü'l-Lugateyn ("Judgment between the Two Languages").

2.2. The Word "Bacanak (Sister In Law's Husband)" In Contemporary Turkish Dialects

In the word seen as "bacanağ" in Azerbaijani Turkish there is the k #> g # vocalization as a common language structure of the Azerbaijani Turkish. Only in the Azerbaijani Turkish among other Turkish dialects

bacanak was used with –nak suffix. The word first was used in its first form without suffix in dialects other than Azerbaijani Turkish.

Prof. Dr. K.K. Yuhadin in his work named “Kırgız Sözlüğü (Kyrgyz Dictionary)” has reported that Kyrgyz people employ “baca”, the initial form of this word, in lieu of the word “bacanak”. (Yuhadin, 1998:76)

In Gülsine Uzun’s article styled “Common Words in Kyrgyz Turkish of East Turkestan and Mongolian -I-“, the word in question is included as baca “bacanak” and it is stated that its equivalent in Mongolian is again baca. (Uzun, 2011:5) and basing on this we can say that this word is always seen in the same manner in Kyrgyz Turkish.

The word in question is used Kumuk Turkish within the Avar language is as Baca ‘bacanak’ (Avar) < baca (Kumuk) (Tavkul, 2005:6)

In Bashkir Turkish we notice the words baja and bajay. (Ministry of Culture, 1991:42). Here we see baca> baja, c> j continuousness and “y” derivation at the end of the baca < bajay word.

Usage of the word in Tatar Turkish is similar to that of the Bashkir Turkish. Tatars also employ the word “baca”. (Ministry of Culture, 1991: 42)

The usage is as “baca” in Uighur Turkish like Tatar Turkish. In Turkmen Turkish “a”, the first is vowel is uttered in a long way: Bāca (Ministry of Culture, 1991:42)

Vowel shift is observed in Uzbek Turkish. The first vowel is in the form of á while the second vowel is in the form of ä, and an inclination towards thinning is obvious: bācä (Ministry of Culture, 1991:42)

The word “bacanak” in Kazakh is in the form of baja. In other words bac>baja change has occurred. Continuity stands out. (Bayniyazov, Bayniyazova 2009:74)

Nesrin Güllüdağ, in the doctoral thesis prepared thereby styled “Kırımçak Türkçesi Grameri (Krymchak Turkish Grammar)”, has included the word in the words used by Crimean Jews known as the Krymchaks. In this thesis we see the word Bacanak as an example of o>a change in the “Rounding of Unrounded Vowels” article. Bocana (KS)> bacanak. (Güllüdağ, 2005:134)

3. Conclusion And Evaluation

After extensive researches, I have reached the conclusion that the word “bacanak” which we use in today’s Turkish language in the meaning of “1. Each of the men whose wives are sibling, 2 Friend, crony. (TDK, 1998:190)” comes from the word, “baca” and the word, “baca” is the same word with “bacı meaning “sister in the Turkish language used in Anatolia” in our day.

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Appendix E. Abbreviations

Az.: Azeri Türkçesi
Blk., TatK.: Karaçay- Balkar Ağızı, Kazan- Tatar Ağızı
Çağ.: Çağatay Türkçesi
Çuv.: Çuvaş Türkçesi
DAO: Tuncer Gülensoy, Doğu Anadolu Osmanlıcası.
Kırg.: Kırgız Türkçesi
KKlp.: Karakalpak Türkçesi
Kum.: Kumuk Türkçesi
KS.: Kırımçax Tılı, D. İ. Rebi, Simperefol 1993.
Moğ.: Moğolca
Nog.: Nogay Türkçesi
Osm.: Osmanlı Türkçesi
TDK: Türk Dil Kurumu
Trkm.: Türkmen Türkçesi

4th International Conference on New Horizons in Education

The influence of the implementation of a dialectical reconstruction of knowledge teaching approach on the evolution of self-perception in mathematics of students enrolled in a primary education program.

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Abstract

Student teachers enrolled in primary education appear to be strongly influenced by their relationship with mathematical contents and their perception about their own ability to master these contents. Like Terrier (2011), we believe that "self-perception is not fixed once and for all. It evolves by our encounters and experiences. ". In this context, we wanted to verify whether the teaching approach based on the model of dialectical reconstruction of knowledge (Boyer 2001) implemented in the mathematics' teaching courses at the Université du Québec en Outaouais could positively influence students' self-perception in mathematics. The teaching approach encourages student teachers to deconstruct and then rebuild their understanding of mathematics and mathematics teaching. To do this, we used an Osgood type questionnaire (scale of 1 to 7) with 33 pairs of adjectives taken from texts written by students describing their attitude towards mathematics. We administered the questionnaire before and after the first mathematics course and after the second mathematics course. This paper presents the results and analysis of the possible influence of the teaching approach on self-perception in mathematics implemented in the two courses in mathematics education.

Keywords: self-perception; learning; mathematics

1. Introduction

In mathematics, the concept of self influences the self-perception of the student's skills in this discipline. Self-perception in mathematics is the representation that the student has of what he can and cannot do in mathematics. The self-concept itself can be positive or negative, realistic or unrealistic (Palascio & Lafortune, 2000). The self-concept emerges from various perceptions that the individual has of himself, but also in comparison with others, in a specific situation in a given environment (Ruel, 1987). We would like to think that the dialectical reconstruction of knowledge model (Boyer, 2001; Boyer & Mailloux, 2006) implemented within the framework of the courses in mathematical didactic for primary education can positively influence the self-perception that students have of themselves in mathematics and therefore on their skills in teaching mathematics in primary education.

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The future teachers registered in the primary education program present major difficulties in integrating their mathematical knowledge and their didactic knowledge in teaching mathematics (Wilkins & Brand, 2004; Morin, 2003; Cavey, 2002). Several studies showed that these difficulties are related to three elements: beliefs and knowledge about the teaching and the apprenticeship of mathematics (Scott, 2005; Wilkins & Brand, 2004; Lafortune, Deaudelin, Doudin & Martin, 2003) as well as a defective basic training in mathematics (Arsenault and Voyer, 2003; Sanders & Morris, 2000; Fennema & Franke, 1992). These difficulties are not limited to Quebec universities; this observation has been made in North America and in many European countries.

We noticed that the students of the UQO are fully conscious of their difficulties when confronted with the concepts and the mathematical processes within the framework of mathematical activities illustrating what their future pupils will go through. Division by a fraction is a striking example. The majority of the students are quick to remember a procedure to be followed to divide by a fraction; one only needs to “invert the divisor and multiply”. But the majority is not able to explain the meaning of the procedure and is unable to say what the quotient represents (ERIC Digest, 2003; Hanselman, 1997). We observe an ignorance of the meaning of symbols and mathematical terms as well as a discarding of creativity, judgement and reasoning. The awakening to their gaps about the concepts and the mathematical processes causes a deep malaise in the students and this imbalance encourages them to re-examine this knowledge while calling in question the way in which they “learned them”.

Students are strongly influenced by their relationship with a-priori mathematical content, concepts and beliefs gradually built on the teaching and learning of mathematics (Holt-Raynolds, 1992; Goodman, 1988). It seems that over the years, they have built a rather negative perception of themselves in mathematics. Research shows that people with poor self-esteem rarely attend uncertain paths and engage only in known ways. This protective attitude towards self-concept limits the opportunities for learning and self-actualization. (Viau, 1995). We thought that the implementation of the teaching approach of the dialectical reconstruction of knowledge model should positively influence the self-perception of students in mathematics and improve their mathematical competency.

In this article, we will briefly present the dialectical reconstruction of knowledge model and its teaching approach, which led us to our questioning. We will then describe the self-perception in mathematics stated by future primary teachers before and after the mathematics teaching courses and finally we will analyze the results in terms of the dialectical reconstruction of knowledge model.

2. The dialectical reconstruction of knowledge model

Four principles are exploited in the teaching device: learning precedes development and consequently the learner starts with his own representations to learning; learning situations of “co-constructions” are essential therefore problem solving and group work are important in teacher training; mediation processes by the course instructor or his peers are necessary to the extent that they are located in the students’ proximal zone of development; and that consciousness of its learning by metacognition is fundamental.

The reconstruction model of knowledge illustrated in Figure 1 consists of three steps. The first is to update and clarify the experiential knowledge. It proceeds from the first principle above. The second step is one of assimilation in which the student takes over the theoretical tools needed to properly symbolize his experience. This step reflects the principles two and three. The third step is a process of integration that is to say that the student makes use of these instruments to restructure his perceptual field. We recognize here the fourth principle, the awareness of learning through metacognition (Boyer, Mailloux 2012).

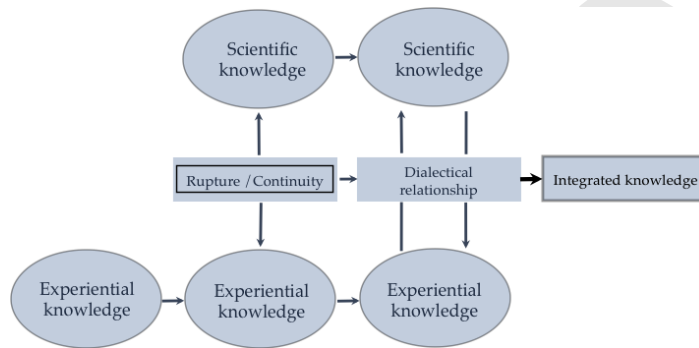


Fig. 1. The dialectical reconstruction of knowledge model (Boyer, 2001)

The teaching device must create an environment where both types of knowledge question each other. The mutual questioning must lead to an integrated knowledge, a reconstruction of knowledge. This integrated knowledge should make students more competent and should influence their perception of themselves in mathematics.

The teaching device does creates an environment where experiential knowledge and scientific knowledge are questioning each other thus leading to integrated knowledge, a reconstruction of knowledge. Learning through problem solving is at the heart of the device and becomes the thread. As shown in figure 2 the process experienced in each course consists of four phases: updating and clarifying the students experiential knowledge; placing students in real life situation by setting a problem that causes cognitive discomfort; prehension by the students of the theoretical tools necessary for the symbolization of experiential knowledge; and the restructuring of the conceptual field.

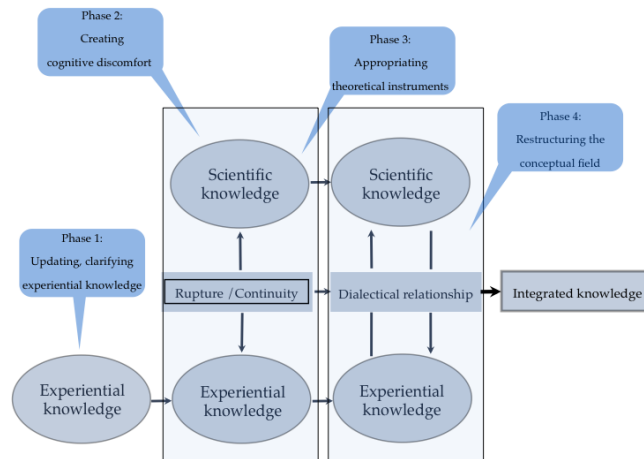


Figure 2: Links between the four phases of the teaching approach and the dialectical reconstruction of knowledge model (Boyer, Mailloux & Boyer, 2012).

In Phase 1, the updated experiential knowledge explored on a personal level and shared with fellow students allows students to become aware of their beliefs and knowledge, and those of others, on a specific educational theme. For example, the following knowledge was presented by students in a course on the process of addition: each step must clearly be explained, pupils must pay attention to the teacher's explanations, pupils must understand the meaning of the concept before learning the procedure and the teacher must proceed from simple to complex situation problems. The presentation, by some students in phase one, of these beliefs and experiential knowledge provoked socio-cognitive conflicts among several students.

In phase II, the group is placed in a didactic or an a-didactic situation (Brousseau, 1986). The didactic situation presents a teaching/learning situation where the students are asked to solve one of three types of didactical problems: situations of an organizational nature, situations involving the devolution of a concept and problems involving learning a mathematical process. The a-didactic situation is one where the course instructor plays the role of a primary school teacher and students play the role of pupils during a math lesson. Here, students try to solve the mathematical problem situation, as would pupils in a primary classroom. This second phase is crucial because this is where a socio cognitive imbalance is often experienced with a lot of intensity. The limits of experiential knowledge rapidly emerge, the need to distinguish between beliefs and scientific knowledge arises as well as the importance of understanding and implementing this "knew" knowledge in the classroom.

During the second phase, students attempt to mobilize and implement their beliefs and experiential knowledge to resolve the situation (didactic or a-didactic). They engage themselves in the situation and they continue the analysis of the situation began with the presentation by the course instructor of the problem situation through written or oral statements or by simulations. At this point associations with similar situations encountered beforehand come into play. Students often request the clarification of constraints as they try to identify relevant information. In a sense they try to determine if their beliefs and experiential knowledge are enough to solve the didactical or a-didactical situation. Students then develop an action plan that has the potential to work and how they can implement it. They must somehow make an assessment of their experiential knowledge and choose among these and scientific knowledge what will be useful in solving the problem situation.

In Phase III, students attempt to resolve the situation by implementing their plan. They can then identify and track milestones, seek and obtain additional information, make use of mathematical “manipulatives”, determine another representation of the problem, etc. They finally arrive to data processing. The theoretical tools necessary for the symbolization of their experimental knowledge are acquired by the students through specialized readings and the presentation of scientific knowledge by the course instructor. These theoretical concepts are illustrated by mathematical and didactical activities modeled by the course instructor or the students themselves. The problem situation is thus clarified and reformulated and students can generate new solutions. Part of the work is individual and the other is collective in the context of didactic exchange (sharing) led by the course instructor.

As Hart (2002) points out the more skills and concepts are complex, the more the need to observe and “experiment” them becomes necessary. Students thus have many opportunities to observe pedagogical and didactical practices and to make inferences about approaches to teaching and learning mathematics based on their classroom experiences and readings. Students are encouraged to reflect on personal and collective elements of ruptures and continuities between their experiential knowledge and their scientific knowledge.

In Phase IV, students become fully aware of what was learned. This is somehow a validation process by which they examine the appropriateness between what they wanted to do and what they actually did. The validation can lead to minor adjustments or a refusal or an acceptance of the solution. Two types of validation are considered, the validation of the resolution process and the validation of the solution.

This is accomplished by the use of a mathematical journal worked on at the end of the fourth phase (weekly). Students are asked to reflect on three questions: what are the key elements of this week's course; how do you plan to use or integrate these elements into your teaching; how will the use of your new knowledge contribute to improve the academic success of your future students? Students also write summaries of readings, personal comments and annotations. The mathematical journal allows students to list the most significant learning, new knowledge and do a reflective analysis. Subsequently, the students present and justify their processes and solutions. By participating in these discussions, students gain a clearer awareness of their learning. It is a form of assessment where they update the implications of their reconstructed knowledge in the didactic action.

The implementation of the teaching device was shown to positively influence the students' conceptions about learning and teaching mathematics to primary school children (Mailloux & Boyer, 2012). We thought that the mathematical work done by the students during classes and the conceptual work done during and between classes could influence students' self-perception in mathematics. This leads to the following research question: does the implementation of the dialectical reconstruction of knowledge model and its teaching device can positively influence students' self-perceptions in mathematics?

3. Methodology

An Osgood type questionnaire was used (scale of 1 to 7) with 33 pairs of adjectives taken from texts written by students describing their attitude towards mathematics. The questionnaire was administered before and after the first mathematics education course and after the second mathematics education course. Initially we had 48 respondents but we only analysed the answers of the 13 students who completed the three questionnaires.

4. Results

To compile and analyse the results, we grouped the pairs of adjectives under five themes: methods of work, attitude, motivation, affect, and competence. We calculated the average (minimum 1 up to 7) obtained for each of

the adjective pairs at each step: before the first course (A), after the first course (B) and after the second course (C). To facilitate the reader's understanding, the tabulated results show the pairs of adjectives always in the same order, the negative adjective first. However, the questionnaires completed by the students presented the pairs of adjectives in different orders to prevent them from repeatedly choosing the same value.

Table 1 shows the self-perception of the students regarding their working methods before (A) and after (B) the first course and after the second course (C). The students seem to have a positive perception of their working methods but see themselves as rather passive. We note that the pair of adjectives that gets the lowest score in each of the steps is that concerning competitiveness. It seems that students tend towards a more cooperative working method by the end of the two courses, an approach strongly advocated by the learning device they experienced.

Table 1. Self-perception of the students regarding their working methods

Statements	A	B	C
Neglecting/conscientious	5,23	6,23	5,85
Undisciplined/disciplined	5,62	6,08	6,00
Lazy/worker	5,69	6,08	5,92
Inconstant/perseverant	5,69	5,92	5,77
Passive/active	5,08	5,00	4,92
Cheater/honest	5,23	6,62	6,62
Straggler/assiduous (school work)	5,62	6,31	6,31
Disordered/ordered	5,69	5,92	5,54
Lax/perfectionist	5,69	5,77	5,77
Careless/applied	5,08	6,00	5,85
Competitive/non-competitive	5,23	4,77	4,54
Averages	5,57	5,58	5,74

Table 2 shows student attitude towards mathematics. We can see that their attitude towards mathematics is rather positive but they perceive themselves as not participating much in mathematical activities and as being much less attentive after two courses in teaching mathematics. These results are disturbing by the fact that active participation and attentiveness are strongly encouraged during classes. On the other hand they perceive themselves as being serious and “present” while doing mathematics.

Table 2: self-perception of the students' attitude towards mathematics

Statements	A	B	C
Absent/present	5,54	6,23	6,15
Distracted/attentive	5,08	5,15	4,69
Mute/participant	5,31	4,92	4,77
Non studious/studious	5,85	5,54	5,38
Light/serious	5,77	5,54	5,62
Averages	5,51	5,48	5,32

Table 3 shows that students do not seem enthusiastic when it comes to mathematics. Their interest in mathematics increases while their self-perception of being ambitious and encouraged in mathematics increases slightly. Except for the fact that they see themselves forced or compelled to do math, they maintain their motivation after two courses of mathematics education.

Table 3: self-perception of the students' motivation towards mathematics

Statements	A	B	C
Disinterested/interested	4,77	5,46	5,46
Bored/interested	4,69	5,38	5,23
Disgusted/enthusiastic	4,23	4,85	4,77
Bound/free	5,31	4,77	4,85
Discouraged/encouraged	4,62	5,08	4,77
Unambitious/ambitious	5,62	5,69	5,77
Unmotivated/motivated	5,08	5,46	5,15
Averages	4,62	5,08	4,77

Table 4 shows that students do not feel very secured or able when it comes to mathematics. The teaching device does not seem to create an environment that increases the students' sense of "security" in mathematics. Students' perception of being valorised in mathematics increases while their perception of being revolted diminishes slightly.

Table 4: self-perception of the student's affect

Statements	A	B	C
Disgusted/attracted	4,62	4,69	5,23
Lost/able	5,00	4,85	4,77
Insecure/secure	4,31	4,23	4,46
Revolted/conformist	5,08	5,38	5,38
Devalorized/valorized	4,62	5,00	5,15
Defeatist/optimist	5,00	5,85	5,00
Averages	4,77	5,00	5,00

Table 5 shows that students do not perceive themselves very competent in mathematics and they see themselves less competent after two courses in mathematics teaching. The results show an increase in the students' perception of competence after the first course and that they feel less competent after the second course.

Table 5: self-perception of the student's competence

Statements	A	B	C
« Dumb »/clever	4,38	4,69	4,00
Incapable/capable	5,46	5,54	5,31
Unsatisfied/satisfied	5,00	5,46	4,85
Saphead/bright	5,23	5,31	5,00
Averages	5,02	5,25	4,79

5. Discussion

The implementation of the reconstruction of knowledge model contributes in developing more complex beliefs about the teaching and learning of mathematics. As we said earlier, students seem to have a positive perception of their working methods but see themselves as rather passive. The pair of adjectives (statements) that gets the lowest score in each of the steps is that concerning competitiveness. The social constructivist approach can explain this situation since we encourage cooperation.

The results shows that students' attitude towards mathematics is rather positive but that they do not participate much and that they are much less attentive after two courses. Even if the students do not seem enthusiastic when it comes to mathematics, except for the fact that they see themselves obligated to do mathematics, they seem more motivated after two courses of mathematics education. We probably can say that living the reconstruction of knowledge model through the four phases teaching approach helped improve their motivation by giving them the opportunity to address the scientific knowledge in the field of learning and teaching mathematics with

personal reflections. Students seem to develop a creative power in the construction of new didactical knowledge in mathematics.

Students do not feel secure when it comes to mathematics; they perceive themselves as being overwhelmed even after two courses in mathematic education. We must say that we probably have to take into account the teaching internship that immediately follows the second course and its potential influence that can destabilize students who's integrated knowledge is still fragile after two courses.

The difference in self-perception in mathematics from the beginning of the first course to the end of the second course is not very significant. However, reading the results, one can say that after two courses of mathematics education students seem to think they have better working methods, they are more motivated and valued in mathematics. They never the less have a less positive attitude towards mathematics and they feel less competent. It seems that the reconstruction of their knowledge in mathematics undermines their sense of competence even if they perceive themselves as having better working methods. The model for the reconstruction of knowledge allows students to approach the content of the scientific knowledge with a clearer awareness of what they know as they consider themselves as subjects in their own right in the act of knowing.

The most negatively perceived questionnaire statement at each of three steps point brings us to say that the students seem to perceive themselves to be less competitive and to participate less in mathematical activities. They consider themselves more enthusiastic and strong after the first course but less so after the second course. Cognitive discomfort of the second phase of the device could explain that students feel less "secure" after the first course.

We can observe the greatest positive difference for the following questionnaire statements: conscientious, interested, encouraged, valued and attracted by mathematics. It seems that the implementation of the reconstruction of knowledge model and its teaching device contributes in developing in students more complex beliefs (the experimental knowledge) about the teaching and learning of mathematics (Boyer, Mailloux, 2012). The implementation of the model may have contributed, albeit modestly, to positively change the perception that students have of themselves in mathematics.

6. Conclusion

We thought that the implementation of the teaching approach of the dialectical reconstruction of knowledge model could positively influence students' self-perception in mathematics and improve their mathematical competency. The data shows little difference in students' self-perception in mathematics and there is no evidence that the teaching approach improves students' mathematical skills. Self-perception in mathematics is rather positive (average of 5,20 on a scale of 7, which is 74%) before the first mathematics education course, is more positive after the first course (average of 5,45 or nearly 78%) and returns to an average of 76% after the second course. This seems to confirm the pertinence of our research problem, namely that self-perceptions of students on learning and teaching mathematics are well established at the beginning of teacher training and that these self-perceptions seem particularly difficult to change.

Although our data show little change in students' self-perceptions towards mathematics, our preliminary results seem to show that self-perception is not fixed once and for all. It can slowly evolve through our encounters and experiences. The analysis of students' mathematical journals suggests that interventions based on the reconstruction of knowledge model may have the potential to positively influence the perception students have of themselves in mathematics. This leads us to further investigate how the use of the mathematical journal can influence self-perceptions in mathematics of future primary teachers.

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The influence of secondary education entrance examinations practiced in Turkey (the placement test, sbs) on the students' social life

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Abstract

This study, between the years 2008-2011, was carried out to find out the effects of the Placement Tests on the students' social life. The Placement Test is conducted with the aim of determining which secondary school the students will continue for their education in Turkey. The universe of the research that was performed in the screening model is composed of the 6th, 7th, 8th grade primary school students in the province of Sakarya, Turkey. The sample determined according to the method of purposive sampling, consisting of a total of 951 students; 684 of them attending state school, and 267 of them attending private school. "Student placement test questionnaire" was used for data collection. After being transferred the collected data to the SPSS programme, descriptive statistics (Average frequency distributions) were analyzed by using "t-test" whether there are differences of opinion between the averages of only one independent variable, to dependent variable in two groups. According to the obtained findings, it is concluded that due to the preparations for the Placement Test, students spend most of their time in triangle of courses, school and tutoring, so they can no longer spend time for their interests, needs, and hobbies, doing sports, social and cultural activities, and they are able to spend very little time with their families.

Keywords: Exams, the Placement Tests, The effects of test to the students' life.

1.Introduction

In Turkey, since 2004 the new curriculums that were implemented in steps, adopted the understanding of student-centered education as constructivist, multiple intelligences, Project-based learning. This condition brought many changes according to the curriculums that are dominated by behavioral learning theories regarding the dimensions of objectives, content, level of education and assessment. Thus, the perspective has changed too, on the evaluation of knowledge acquired in the line with modern approaches.

Assessment and evaluation based on the traditional teaching intended to assess the information and encourages memorization. In the modern approach, assessment is a tool that supports learning. It reveals not only what the student knows, but also what could achieve and what is ready to achieve. However, since 1970s; schools, colleges, secondary schools in Turkey, have become the institutions that prepare students to the universities. System that is not educational but selective and sifting, moved the test anxiety

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to the under aged students, consequently in the past 30 years, our youth that we grew up without living their childhood, was accustomed to see the answers to all the problems faced, in the responses to the questions with 4-5 options.

According to Turgut (1992) exams are the assessment of situations that have been prepared to the aim of observe and conclude the students' behaviors. According to the objectives of your usage, the exams can be classified as selection, competition, qualification, classification, screening. However, its results are not evaluated alone. In fact, the Placement Test is one of the elements of the system. Therefore, it is taken up in an evaluation system "Transition to Secondary Education System" (OGS) that is containing the other elements in the placement of a student in secondary education. OGS is a system covering the principles that determine in which secondary education institution students will continue. In this system, some elements are located like Placement Test (SBS), Year-end Overall Score (OYP), Behavior Score (DP), Class Score (SP), Secondary Education Placement Score (SBSP). For this reason, in order to explain the system strictly, description of each component and relationship with one another was revealed. The Placement Test is on the basis of the system. Transition to Secondary Education System which was started to be implemented in the academic year of 2007-2008 and ended in the academic year of 2011-2012, was developed with the aim of the need for training qualified people; as a result of rapid changes, developments in science and technology. This system is the continuation of the process of harmonization of training programmes that changes gradually, rather than just a test, since 2004.

The Placement Test is a central examination which is implemented at the 6th 7th and 8th grades of primary schools at the end of school year. The test includes the compulsory courses except from Visual Arts, Technology and Design, Music, Physical Education, Counseling and Social Activities (MEB, 2007). In other words, the Placement Test is an exam applied at the end of school year by Ministry of National Education (MEB) with the aim of determining the level of achievement in the courses named Turkish Language, Mathematics, Science and Technology, Social Sciences and Foreign Language. In the Placement Test, questions are posed to the students based on the curriculum which is implemented through the school year. Those questions are asked from the courses named Turkish Language, Mathematics, Science, Social Sciences (Social Sciences, Atatürk's Principles and History of Turkish Revolution, Religious Culture and Ethics). The number of questions that are asked in the exam differs for each class. The questions are prepared by considering the achievements that are planned to have the students in that school year. Those questions are arranged in the quality of measuring the proficiency of student's interpretation, analyzing, critical thinking, prediction, problem solving and so on. Each course possesses weight coefficient to use in calculating the weighted standard score (MEB, 2007). The Placement Test is not a compulsory exam that every student studying in a primary school should attend. However, as it is an exam determining which secondary school the student will attend; it is considered as an important exam by the society.

It has been revealed by the researchers that selection and placement tests such as the Placement Test psychologically cause crucial problems such as "stress" and "anxiety" on students. However, the issue that should not be ignored is the Placement Test's influence on the social life of students. This influence on the social life will indirectly affect the psychology of the student as well. According to Hoffer (1980), training a person in philosophical basis means educating that person. To train means understanding the reasoning of the area of study. Also, there will not be any decision-making process in an area that is not reasonable. This is the principle that determines the existence of a human being. Education is efficient as long as it develops and increases the psycho-social side of a person. It is also effective as long as it

increases the human quality of an individual. It includes all the influences that are exposed in every moment of life and it creates more or less some psycho-social and even bio-physical changes in the human being. As a result, education is a tool to make an individual healthy in body and soul, successful, and happy (Yılman, 1994). It is quite important to allow time for the activities that are suitable for a student's age, his/her interests and needs and hobbies of himself/herself in order for them to be happy.

According to Kurtkan (1987), it has been a must for those who really deserve to be trained in further education due to the increase in demand. For this reason, competitive examinations for the entry to the universities were primarily started to be applied. In the long run, as a result of the increase in demand for the high schools giving intensive courses that are effective in entering a university, examinations to enter high schools were started to be applied. In that sense, the families who would like their children to be trained up to the highest possible level of education, started to invest on the education. The families mobilize all their sources in order to increase their children's level of education. In addition, they started to get their children to tutor in order to increase their level of knowledge on the courses that are tested in the exam. These are the courses that the children are less proficient. As a result of the increasing demand on the private tuitions, private teaching institutions, which are discussed continuously in Turkish Education System, occurred (Coşkun, 2005). Private teaching institutions giving courses related to some art activities in the beginning, started to act as private institutions giving additional courses after the legal regulations and with the spread of central exams they became institutions preparing students for those exams (Temel, 2002). The examination system caused the increase in demand on the private teaching institutions (Yıldız, 2005) and as a result, private teaching institutions gained an important place in the social structure. According to Eşme (2002) who defines Turkish Education System as old-fashioned due to being based on exams, most parents became a part of this education system instead of reforming the system. Because families have achievement expectations from their children in exams like the Placement Test, their attitudes and behaviors towards their children lead to a pressure on the children and started to increase exam anxiety. According to Eşme (2002), high school and university entrance exams which occurred especially in the last thirty years have brought about significant changes in the teaching profession. With the entrance of these exams into Turkish Education System, the teachers became a part of the examination system and that system made them individuals who prepare students for the exams. In this regard, teachers put the courses such as Art, Music and Physical Education which specifically develop students' emotional intelligence into the background, and then they started to struggle for completing the existing training programs and educate students with rote-learning approach.

Because the Placement Test has begun to be implemented since 2007-2008 school year in Turkey, there has not been much research on it. There are some studies related to university entrance exam and secondary education entrance exam practiced with different names in the previous years. However, there are many investigations about the influence of exams on students' psychology (Aslan, 2005; Baltaş, 1999; Başarır, 1990; Çavuşoğlu, 1993; Duman, 2008; Erkan 1991; Gökçedağ, 2001; Kaya, 1997; Kayapınar, 2006; Keskin, 2001; Olgun, 1998; Yıldırım, 2004). It has been observed that a huge number of these studies focus on exam anxiety. There are some studies about the influence of anxiety on students' success on exams which are conducted by Munz and Smouse (1968), Wine (1971), Önler (1972), Başarır (1990), Erkan (1991), Gülen (1993), Keskin (2001), Kabalıcı (2008). According to Alpert and Haber (1960) who were the pioneers of examining the impact of exam anxiety on individuals' success, there is a difference between those feeling high level of pressure for the exam and those who feel lower level of pressure with regard to the performance that they presented in the exams. According to the authors, the individuals under high pressure are less successful than those who are under low pressure. Besides, Munz and

Smouse (1968) support this view. Moreover, according to Wine (1971), individuals having low level of exam anxiety achieve more success than those possessing high level of exam anxiety. The common point in those studies is the fact that every individual has anxiety because of the exams and the level of anxiety affects the individuals' achievement in exams. According to Kayapınar (2006) who revealed the influence of exams on students' social life, anxiety level of the students who do sport regularly is significantly lower than the others. At this point, it should not be underestimated that participating in social and cultural activities, spending time with their family and friends, and allowing time for themselves and hobbies will provide lower level of anxiety for the students. All these activities take part in students' social life. However, even though the investigations focus on the psychological effects of the exams, it can be claimed that there is a scarce of research on the sociological and economical influences of the exams. For this reason, the present study has centered on the influence of the exams such as the Placement Test on the students' participation in sport, social and cultural activities. With this aim in mind, answers for the following question and sub-questions have been searched in this study.

1.1. Problem

Is there any influence of the Placement Test (SBS) on the social life of the students?

1.1.1. Sub-problems

1. What are the students' views on the influence of the Placement Tests on their social life?
2. Is there any difference on students' views about the influence of the Placement Test on their social life with respect to some variables (gender, type of school, the number of attendance in Placement Test, to attend private teaching institution)?

1.2. The Significance of the Study

This study is significant in terms of revealing whether the students allow time for the common needs of their age and themselves because of the fact that they are always in hustle and bustle from exam to exam, from school to private teaching, from private teaching to school, from private teaching to private tutorials, from private tutorials to another private tutorial.

1.3. Assumptions and Limitations

Students are considered to have responded the questions in a sincere manner. The study is limited to the students who are trained in 6th 7th and 8th grades in the Sakarya province of Turkey.

2. Research Method

The study was carried out in "General Screening" model.

2.1. Participants

The population of the research includes 6th 7th and 8th grade students at primary schools of Sakarya. Among the students, 14.392 of them were at 6th grade, 14.278 of them were at 7th grade and 14.121 of them were at 8th grade. The sampling of the study includes sixth, seventh and eight grade students who

study at a state and private school in the province of Sakarya, a state and private school in Serdivan district and a state school in Arifiye district. The sampling was determined according to purposive sampling. Among the students in the sampling, 1871 of them study at a state school and 367 of them study at a private school.

2.2.Measures

“The Placement Test Student Scale” developed by Karabacak (2010) was used in the current study. The Cronbach alpha value of the scale is “0.928”. In the validity study for the factor named “The Influence of The Placement Test on The Social Life”, “the value of measuring the adequacy of the sample” is “0.793” and the correlation value between the number of sampling and the number of items in the sampling is “ $p=0.00<0.05$ ”. Besides, the scale measures 54.10% of the quality that is aimed to be measured in the factor named “The Influence of The Placement Test on The Social Life” (Karabacak, 2010).

2.3.Procedure and Data Analysis

The data was collected through the implementation of surveys by the researcher. The researcher visited the schools that were noted in the sampling at different times. The analysis of the data was transmitted to SPSS 15 software program in a computer. Descriptive statistics (mean and frequency distribution) for the data was applied. Additionally, “independent Sample t-test” was used in order to determine the difference between the mean score of the two groups.

3. Findings

951 students participated in the survey, 28.1% of them were studying at private schools, 71.9% of them were studying in state schools. 50.9% of them were female, 48.9% of them were male. Among the students, 40.9% of them were at 6th grade, 39.1% of them were at 7th grade, and 20% of them were at 8th grade. While 65.2% of the students attended in private teaching institution, 34.8% of them did not attend any private teaching institution.

3.1. Students’ views on the impact of Placement Test on their social life

Table 1. Frequencies for the students’ views on the impact of Placement Test on their social life

Dependent Variables		1*	2	3	4	5	Total
I can have time for myself while preparing for the Placement Test	f	258	193	193	127	168	939
	%	27.5	20.6	20.6	13.5	17.9	100
I can have enough time for doing sport while preparing for the Placement Test	f	336	192	188	91	123	930
	%	36.1	20.6	20.2	9.8	13.2	100
I can have time for the social and cultural activities while	f	293	242	175	106	112	928

preparing for the Placement Test	%	31.6	26.1	18.9	11.4	12.1	100
We can go somewhere as a family on holidays while I prepare	f	324	180	160	111	158	933
for the Placement Test	%	34.7	19.3	17.1	11.9	16.9	100

*1=Completely Disagree, 2= Less Agree, 3= Agree on average, 4= Much Agree, 5= Always/Certainly Agree

1. Findings for the item named "I can have time for myself while preparing for the Placement Test."

When Table 1 is examined for the students' level of agreement on the item "I can have time for myself while preparing for the Placement Test", it has been found out that 17.9% certainly agree, 13.5% much agree, 20.6% of them agree on average, 20.6% of them less agree on the item. Also, it has been determined that 27.5% of the students thought that they certainly cannot spare time for themselves while preparing for the Placement Test. These findings indicate that the students, who will enter the Placement Test, have an intensive study program. In other words, students can spare time neither for themselves nor for their needs and interests as they prepare for the Placement Test.

2. Findings for the item named "I can have enough time for doing sport while preparing for the Placement Test"

For the item "I can have enough time for doing sport while preparing for the Placement Test", it has been revealed that 13.2% of the students certainly agree, and 9.8% of them much agree on this view. It has been confirmed that while 36.1% of the students certainly disagree, 20.6% of them less agree on this item. According to the findings, 56.7% of the students cannot have enough time for doing sport. It is considerably difficult for these students to have time for sport activities as they are busy with preparing for the exam intensively.

3. Findings for the item named "I can have time for the social and cultural activities while preparing for the Placement Test"

When the students' answers for the item "I can have time for the social and cultural activities while preparing for the Placement Test" is examined in Table 1, it has been verified that 12.1% of them certainly agree, 11.4% of them much agree, 18.9% of them agree on average. 26.1% of the students less agree, 31.6% of them completely disagree on the item named "I can have time for the social and cultural activities while preparing for the Placement Test".

4. Findings for the item named "We can go somewhere as a family on holidays while I prepare for the Placement Test"

According to table 1, 16.9% of the students certainly agree, 11.9% of them much agree, 17.1% agree on average, 19.3% less agree on the item "We can go somewhere as a family on holidays while I prepare for the Placement Test". It has also been confirmed that the percentage of the students who completely disagree on the item "We can go somewhere as a family on holidays while I prepare for the Placement Test" was 34.7.

3.2. Students' Views on The Impact of The Placement Test on Their Social Life With Respect to Some Variables

1. For Gender:

Table 2. T-Test results for the students' views on the impact of the Placement Test on their social life according to gender

		N	X	ss	t	sd	p
I can have time for myself while preparing for the Placement Test	Female	479	2.70	1.41	.820	934	.412
	Male	451	2.78	1.48			
I can have enough time for doing sport while preparing for the Placement Test	Female	474	2.26	1.34	3.737	925	.000*
	Male	453	2.60	1.44			
I can have time for the social and cultural activities while preparing for the Placement Test	Female	475	2.45	1.36	.281	923	.779
	Male	450	2.48	1.35			
We can go somewhere as a family on holidays while I prepare for the Placement Test	Female	478	2.65	1.49	1.600	928	.110
	Male	452	2.49	1.46			

* $p < 0.05$

According to t-test results presented in Table 2, there is not any significant difference for gender with respect to the items "I can have time for myself while preparing for the Placement Test", "I can have time for the social and cultural activities while preparing for the Placement Test", and "We can go somewhere as a family on holidays while I prepare for the Placement Test" ($p < 0.05$). However, t-test results for gender for the item "I can have enough time for doing sport while preparing for the Placement Test" confirmed $p = 0.00$ value, so considerably significant differences were revealed with respect to $p < 0.05$. When the same table is examined, the mean score for the female students who answered the item "I can have enough time for doing sport while preparing for the Placement Test" was " $X = 2.26$ " and it was " $X = 2.60$ " for the male students. These findings indicate that female students spare less time for the sporting activities while they prepare for the Placement Test than the males. No significant differences were found for gender with respect to the items "I can have time for myself while preparing for the Placement Test", "I can have time for the social and cultural activities while preparing for the Placement Test", and "we can go somewhere as a family on holidays while I prepare for the Placement Test".

2. For Type of School:

Table 3. T-Test results for the students' views on the impact of the Placement Test on their social life according to type of school

		N	X	ss	t	sd	p
I can have time for myself while preparing for the Placement Test	State	679	2.98	1.44	8.640	937	.000*
	Private	260	2.10	1.27			
I can have enough time for doing sport while preparing for	State	670	2.62	1.43	6.657	928	.000*

the Placement Test	Private	260	1.95	1.19			
I can have time for the social and cultural activities while preparing for the Placement Test	State	670	2.64	1.37	6.383	926	.000*
	Private	258	2.02	1.20			
We can go somewhere as a family on holidays while I prepare for the Placement Test	State	676	2.68	1.51	3.863	931	.000*
	Private	257	2.27	1.36			

*p<0.05

According to t-test results that were performed for the students' answers for the item "I can have time for myself while preparing for the Placement Test" with respect to type of school in table 3, it can be seen that " $p=0.00<0.05$ ". According to these findings, it can be stated that there is considerably significant difference between the students studying at state schools and those who study at private schools. When the mean scores of the two groups with respect to their answers for that item according to the type of school that they study are examined in the same table, the mean score for the state school students was " $X=2.98$ ", and the mean score for the private school students was " $X=2.10$ ". These findings indicate that private school students can have less time for themselves than the state school students while they prepare for the Placement Test. However, while the expected result is the opposite of this finding, it is surprising that private school students can spare less time for themselves. On the other hand, it should be born into mind that the private school students' attendance to classes for full-time may have caused such finding.

As is seen in Table 3, " $p=0.00$ " value was found for the t-test results performed for the item "I can have enough time for doing sport while preparing for the Placement Test" as a result of analyzing students' answers according to the type of school that they study. Based on this value, it has been confirmed that there is considerably significant difference between the private school students' views and the state school students' views in terms of $p<0.05$ value. While the mean score for the state school students' answers was " $X=2.62$ ", the mean score for the private school students was " $X=1.95$ " in the same table. The difference between the two groups' mean score was " 0.67 ". Based on these findings it may be easily claimed that state school students can spare more time for doing sport than the private school students while they prepare for the Placement Test. However, such result may occur due possibly to the private schools' additional programs for the Placement Test preparation. Nevertheless, according to Sullivan (2002) additional programs cause increase in burden and so sporting activities become more crucial for the emotional health.

As is seen in table 3, results of the "t-test" conducted for the students' answers for "I can have time for the social and cultural activities while preparing for the Placement Test" according to the type of school confirmed " $p=0.000$ " value. This data indicate considerably significant differences with respect to the views of the students. While the mean score of the state school students' answers for the item "I can have time for the social and cultural activities while preparing for the Placement Test" was " $X=2.64$ ", the mean score for the private school students was " $X=2.02$ ". When the mean scores of both groups are examined, it can be possible to express that private school students can spare less time for the social and cultural activities than the state school students while they prepare for the Placement Test.

According to the type of school, " $p=0.000<0.05$ " value was revealed with respect to the results of the "t-test" conducted for the students' answers for the item "we can go somewhere as a family on holidays

while I prepare for the Placement Test” can be seen in table 3. When the table is examined, the mean score for the state school students was “ $X=2.68$ ”, the mean score for the private school students was “ $X=2.27$ ”. Based on these findings, private school students can go out with their families on holidays less than the state school students.

3. For Number of Taking the Placement Test:

Table 4. T-Test results for the students’ views on the impact of the Placement Test on their social life according to the number of taking the Placement Test

		N	X	ss	t	sd	p
I can have time for myself while preparing for the Placement Test	First	399	3.00	1.45	4.900	931	.000*
	Second	534	2.54	1.41			
I can have enough time for doing sport while preparing for the Placement Test	First	394	2.74	1.45	5.849	922	.000*
	Second	530	2.20	1.31			
I can have time for the social and cultural activities while preparing for the Placement Test	First	393	2.68	1.39	4.362	920	.000*
	Second	529	2.29	1.30			
We can go somewhere as a family on holidays while I prepare for the Placement Test	First	395	2.68	1.49	1.993	925	.047*
	Second	532	2.48	1.47			

* $p<0.05$

According to the results of the “t-test” conducted for the students’ answers on “I can have time for myself while preparing for the Placement Test” with respect to the number of taking the Placement Test in Table 4, “ $p=0.000<0.05$ ” was found. Based on this finding, there is a significant difference between the views of those who will take the Placement Test for the first time and those who will enter for the second. With regard to the item “I can have time for myself while preparing for the Placement Test” answered by 933 students in total, the mean score for the students who will enter the Placement Test for the first time was “ $X=3.00$ ”, the mean score for those who will take the exam for the second time was “ $X=2.54$ ”. According to these findings, while preparing for the Placement Test the students who will enter the Placement Test for the second time spare less time for themselves than those who will take the exam for the first time.

As is seen in table 4, “t-test” was performed for the students’ answers on the item “I can have enough time for doing sport while preparing for the Placement Test” with respect to the number of taking the Placement Test. According to the results of the t-test, “ $p=0.000<0.05$ ” value was obtained. In accordance with these values, there is significant difference between the views of those who will take the Placement Test for the first time and those who will enter for the second. While the mean score for 394 students who will enter the Placement Test for the first time was “ $X=2.74$ ”, the mean score for 530 students taking the exam for the second time was “ $X=2.20$ ”. The findings obtained reveal that the students who will take the

exam for the first time spend more time for doing sport while they prepare for the Placement Test. The basic reason for that may be the students' experiences on the Placement Test.

With respect to the number of taking the Placement Test, "t-test" was performed for the students' answers on the item "I can have time for the social and cultural activities while preparing for the Placement Test", the results obtained " $p=0.000<0.05$ ". For this reason, there is significant difference between the students who will take the exam for the first time and those entering for the second time. Regarding the item "I can have time for the social and cultural activities while preparing for the Placement Test", the mean score for the answers of the students who will take the exam for the first time was " $X=2.68$ ", the mean score for those who will enter the exam for the second time was " $X=2.29$ ". Along with these findings, the students who will take the exam for the second time spare less time for the social and cultural activities than those entering for the first time.

In accordance with number of taking the Placement Test, as the value of " $p=0.047<0.05$ " was obtained from the result of the t-test performed for the students' answers on the item "we can go somewhere as a family on holidays while I prepare for the Placement Test", significant differences regarding the students' views on that item were revealed. According to table 4, the mean score for the students taking the exam for the first time was " $X=2.68$ ", the mean score for those entering for the second time was " $X=2.48$ ". Consistent with these findings, the students taking the exam for the second time can go out or visit someone with their family less than the students entering the Placement Test for the first time.

4. For Going to Private Teaching Institution:

Table 5. T-test results for the students' views on the impact of the Placement Test on their social life according to attendance in private teaching institution

		N	X	ss	t	sd	p																																
I can have time for myself while preparing for the Placement Test	Attendance	602	2.60	1.43	4.024	923	.000*																																
	No Attendance	323	2.99	1.43				I can have enough time for doing sport while preparing for the Placement Test	Attendance	598	2.31	1.38	3.637	914	.000*	No Attendance	318	2.66	1.40	I can have time for the social and cultural activities while preparing for the Placement Test	Attendance	598	2.39	1.32	2.031	912	.043*	No Attendance	316	2.58	1.41	We can go somewhere as a family on holidays while I prepare for the Placement Test	Attendance	598	2.48	1.47	2.164	917	.031*
I can have enough time for doing sport while preparing for the Placement Test	Attendance	598	2.31	1.38	3.637	914	.000*																																
	No Attendance	318	2.66	1.40				I can have time for the social and cultural activities while preparing for the Placement Test	Attendance	598	2.39	1.32	2.031	912	.043*	No Attendance	316	2.58	1.41	We can go somewhere as a family on holidays while I prepare for the Placement Test	Attendance	598	2.48	1.47	2.164	917	.031*	No Attendance	321	2.70	1.49								
I can have time for the social and cultural activities while preparing for the Placement Test	Attendance	598	2.39	1.32	2.031	912	.043*																																
	No Attendance	316	2.58	1.41				We can go somewhere as a family on holidays while I prepare for the Placement Test	Attendance	598	2.48	1.47	2.164	917	.031*	No Attendance	321	2.70	1.49																				
We can go somewhere as a family on holidays while I prepare for the Placement Test	Attendance	598	2.48	1.47	2.164	917	.031*																																
	No Attendance	321	2.70	1.49																																			

* $p<0.05$

As the value of " $p=0.000<0.05$ " was found for the "t-test" result seen in table 5, it can be stated that there is significant difference between the students attending private teaching institutions and those who do not attend any private teaching institution regarding the item "I can have time for myself while preparing for the Placement Test". According to the data regarding the answers on the item "I can have

time for myself while preparing for the Placement Test” given by students (602 of them attend classes in private teaching institutions, 323 of them do not attend any classes in those institutions) presented in table 5, the mean score for the answers of the students attending classes in private teaching institution was “ $X=2.60$ ”, yet the mean score for the answers of the students who do not attend any classes in those institutions was “ $X=2.99$ ”. In relation to these findings, students attending classes in private teaching institutions have naturally less time for themselves than those who do not attend any classes in private teaching institution. Doubtless, this is an expected finding. Students attend classes at school in the morning and attend extra classes in the private teaching institutions in the afternoon or vice versa. At the same time, students attending classes for full-time do not have any weekend breaks. When the matter of students’ being busy with doing homework assigned both from school and private teaching institution is taken into consideration, it is impossible to believe that students attending classes in private teaching institutions can have time for themselves.

When the value of “ $p<0.05$ ” is considered, there is significant difference between the students who attend classes in private teaching institutions and those who do not regarding their answers for the item “I can have enough time for doing sport while preparing for the Placement Test”. When the mean scores for the answers of the students who attend classes in the private teaching institution and those who do not are examined in the same table, it can be seen that the mean score for those attending classes in private teaching institution was “ $X=2.31$ ”, yet the mean score for the students who do not attend any classes in private teaching institution was “ $X=2.66$ ”. Along with these findings, the students who attend classes in private teaching institution spare less time for sporting activities than the students who do not attend any classes in private teaching institution. This was an expected finding. Just think of a student who spends all day at school and all weekends in private teaching institution or a student who spends half of his/her day at school and spend the rest of the day in private teaching institution. In addition, when the extra teaching programs at school and private teaching institution and the shuttle time are considered, it is hard to spare time for different activities.

As is seen in table 5, “ $p=0.43<0.05$ ” value was obtained from the “t-test” performed in order to determine if there is significant difference between the students who attend classes in private teaching institutions and those who do not regarding the item “I can have time for the social and cultural activities while preparing for the Placement Test”. When the mean scores both for the students who attend classes in private teaching institution and those who do not are examined in the same table, it can be observed that there is slight difference between the means. As the mean score for the students attending classes in private teaching institution was “ $X=2.39$ ”, the mean score for those who do not attend any classes in private teaching institution was “ $X=2.58$ ”. It can be claimed that the students who do not attend any classes in private teaching institution can spare more time for social and cultural activities while they prepare for the Placement Test.

As the value of “ $p=0.031<0.05$ ” was obtained from the results of the “t-test” performed for the students’ answers on the item “we can go somewhere as a family on holidays while I prepare for the Placement Test” whether they attend classes in private teaching institution or not, significant difference was revealed. When table 5 is examined, it can be seen that the mean score for the students attending classes in private teaching institution was “ $X=2.48$ ”, yet the mean score for the students who do not attend any classes in private teaching institution was “ $X=2.27$ ”. In accordance with these findings, it has been found out that the students attending classes in private teaching institution can go out with their families on holidays less than the students who do not attend any classes in private teaching institution.

4. Conclusion, Result And Suggestions

4.1. Conclusion

According to these findings, only 56.7% of the students can spare time for social and cultural activities. The public school students can have more time for social and cultural activities than the private school students while they prepare for the Placement Test. In addition, the students who will take the Placement Test for the first time spare more time for the social and cultural activities than the students who took the Placement Test previously. The views of the students who attend classes in private teaching institutions are different from those who do not attend any class in private teaching institution. Likewise, those students who do not attend classes in private teaching institution can spare more time for social and cultural activities than the students attending classes in private teaching institution. In the final declaration of the 5th Turkish Culture Convention (2005), “there should be an emphasis on art education at each grade of MoNE programs and emotional intelligence which is crucial in learning should be highlighted”. Another expression noted in this convention was that complete learning can be possible by a system of education which will be formed by taking both parts of a person equally. However, the findings indicate that the Placement Test lead to a situation which is opposite of the expressions noted in this convention.

Findings indicate that more than half of the students cannot have time for themselves; about 2 out of 3 of them (2/3) can participate in neither sporting nor social and cultural activities. In this respect, both Sullivan (2002) and Eşme (2002) claim that the Placement Test seems to be an obstacle that should be overcome in developing children’s emotional intelligence. As these children are in pre-puberty, struggling for the Placement Test while they are trying to adapt at puberty, influence their normal developmental process negatively. In this regard, it is unreasonable when the view of Sullavin (2002) termed as “individuals become successful especially at various sports and playing an instrument in puberty” is considered in Turkish Education System. As a matter of fact, our children the guarantee of our future commit themselves only for academic success. It should not be ignored that this may be the reason why our country is unsuccessful in Olympics or falls behind the artistic activities when it is compared with other countries. For this reason, Deniz (2002) suggests that adolescents should be guided extracurricular activities and it should be provided for them to participate in various activities along with their interest. The author also emphasizes that this will contribute to the adolescents’ both friendship relations and socialization process.

Another remarkable finding is that private school students spend less time for themselves, sporting, social and cultural activities than the public school students. Actually, it is surprising to obtain such finding because private schools perform these activities a lot on their own. In this respect, the full-time education schedule of private schools may lead to obtain such findings; moreover, it should not be underestimated that those schools may work as a private teaching institution in order to present their success in the Placement Test which will be an advertisement for them. However, this situation may result from the private schools’ extra teaching programs or it may be the reason why parents with the economic power send their children to private teaching institution and get them tutor.

Private teaching institutions use the time that the students can spend for themselves, sporting, social and cultural activities. In this regard, it is difficult for students who attend classes in private teaching institution to spare time for such kind of activities as they spend time at private teaching institution and for doing homework assigned. Based on these findings, it can be said that private teaching institutions have an indirect impact on the development of students’ emotional intelligence.

4.2. Results

1. Students cannot spare time for their selves due to preparing for the Placement Test. 48.1% of the students cannot have time for their needs, interests and hobbies while preparing for the Placement Test. Private school students have less time for themselves than the public school students; students who will take the Placement Test for the second time spare less time for themselves than those who will enter for the first time; students who attend classes in a private teaching institution spare less time for themselves than those who do not attend any courses in a private teaching institution.

2. Students cannot allow time for doing sport because of preparing for the Placement Test. Private school students have less time for doing sport than the public school students; girls spare less time for doing sport than boys; those who will enter the exam for the second time have less time for doing sport than the ones who will take the exam for the first time; students who attend classes in a private teaching institution spare less time for doing sport than the ones who do not attend any classes in a private teaching institution while they prepare for the Placement Test.

3. Students cannot spend time for social and cultural activities as they prepare for the Placement Test (57.7%). Due to preparing for the Placement Test, private school students have less time for social and cultural activities than the public school students; those who will enter the Placement Test for the second time spare less time for social and cultural activities than the ones who will take the exam for the first time; the students who attend classes in a private teaching institution have less time for social and cultural activities than the ones who do not attend any classes in a private teaching institution.

4. Students cannot spend time with their families as they prepare for the Placement Test. 54% of the students cannot go out with their families on holidays when they prepare for the Placement Test. Private school students have less time with their families than the public school students; the students who will take the Placement Test for the second time spend less time with their family than the ones who will enter for the first time; the students who attend classes in a private teaching institution spare less time with their family than the students who do not attend any class in a private teaching institution.

4.3. Suggestions

1. The importance of students' participation in sporting, social and cultural activities should not be ignored. Further, it will be better to accept the time that students spend for sporting, social and cultural activities as mental relaxation and staying away from stress rather than accepting this as a loss of time. It should be remembered that this will enable the growth of healthy generations at the same time. Guidance should be provided for the principals, teachers, students and parents at private schools.

2. Because of the fact that students attending classes in a private teaching institution have more problems with regard to sparing time for themselves, their family, social and cultural activities, a good study program should be prepared for them instead of expecting increase in success from the private teaching institution, study center and private tuition. Preparation before the courses, listening to the lessons and repetition should take place on the basis of this study program. Therefore, the need to attend classes in a private teaching institution will be eliminated and there will be time for other activities.

3. To implement an education system which students can go on their academic studies without influencing their social life will be the best approach in Turkey. The authorities for taking educational decisions should make the necessary regulation in this sense. To abandon the mistake of practicing the Placement Test once in a year for three years time will provide at least for 5th and 7th grade students to have more time for themselves, their family, friends, their needs and interests. This regulation will be very beneficial. However, the way to make the system of transition to secondary education without examination should be explored. With respect to equal opportunity in education, assessment approaches providing the evaluation of all the intelligence types, can be an alternative for the Placement Test.

Suggestions for the researchers: The findings between private school students and state

school students indicate that private school students have more difficulty in sparing time for themselves, sporting, social and cultural activities, they have also difficulty in spending time with their family. As this result may be valid for Sakarya province, investigations for the other provinces can be made and those studies may be compared with Sakarya sample. Also, the influence of the exams such as the Placement Test on the family institution should be investigated.

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4th International Conference on New Horizons in Education

The influence of instructional leadership of school administrators on school effectiveness.

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Abstract

The purposes of the study were 1) to validate the fitness of structural equation model of instructional leadership affecting school effectiveness with empirical data; 2) to study direct, indirect, and total effect of instructional leadership on school effectiveness; and 3) to test for measurement invariance in structural equation model across two sample groups. This research was quantitative. The sample included 270 schools under the Office of Roi Et Primary Educational Service Area 2. The research instruments included a five point scale rating questionnaire. Structural equation model was implemented. The results showed that: (1) The structural equation model of instructional leadership of school administrators affecting school effectiveness was fitted with empirical data. (2) Instructional leadership had direct, indirect, and total effects on school effectiveness. (3) Measurement of invariance between new administrators and highly experienced administrators showed a non-significant chi-square statistic and good practical values, indicating a one-factor model for both groups.

Keyword: Instructional leadership, School Effectiveness, Structure Equation Model

Background and Importance of the Problem

The effectiveness of Thai schools is usually evaluated by national as well as international evaluations. For instance, the new Program for International Student Assessment (PISA), education indicators of the United Nation Development Program (UNDP), and evaluation by the Office for National Education Standards and Quality Assessment as well as the results of foundation education evaluation (O-Net) have shown that as a whole, Thai education still lacks competitive capacity at an international level and still has not achieved the goal of the 1999 National Education Act and the Amendment Version 2002. Schools are the most important minor unit that will raise the educational quality towards international goals. Hoy and Miskel (2001) said that schools with capacity in this respect are effective schools, which teach high-achieving students. They are capable of developing students who have positive attitudes and who can adjust to stressful environment and can solve problems arising at school. Research studies on school effectiveness from the 1980s until today (Hallinger and Murphy, 1985; Hallinger and Heck, 1996; Southworth, 2002; Hallinger, 2003; Leithwood, Day, Sammons, Harris,

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& Hopkins, 2006, Lyons, 2010, Packard, 2011) show that the major factor affecting school effectiveness is the strength of the instructional leadership of school administrators who are involved with curriculum and instruction. Studies on the cause and effect relationships and relationships between instructional leadership of school administrators and school effectiveness are not widely conducted in Thailand. The researchers therefore, saw the importance in developing a model for causal relationship in order to test the validity and fitness of the model with empirical data, studying effects of variables, and testing for measurement invariance between different sample groups so that the model can be used as a means to develop educational effectiveness in the future.

Objectives of the Study

- 1) to validate fitness of structural equation model of instructional leadership affecting school effectiveness with empirical data.
- 2) to study direct, indirect, and total effect of instructional leadership on school effectiveness.
- 3) to test for measurement invariance of structural equation model across two sample groups.

Methodology

This research applied a quantitative research methodology focusing on cause-effect relationships in 2 phases:

Phase 1 - Study of relevant theories and research in order to develop a hypothetical structural equation model

Phase 2 – Statistically analyze the structural equation model (SEM)

1. Population and sample group

The population consisted of the 339 schools affiliated with the Office of Roi Et Primary Educational Service Area 2. The sample group was composed of 270 schools sampled by stratified random sampling.

2. Research instrument

The instrument used was a 5-point rating scale questionnaire. The alpha coefficient of each aspect in the questionnaire was 0.807- 0.890. Structural linearity was found by a confirmatory factor analysis.

3. Data analysis

3.1 Descriptive statistics were used to analyze data frequencies, percentages, means, standard deviations, kurtosis and skewness.

3.2 Referential statistics were used to perform factor analysis and fitness of structural equation modelling with evident data. Model invariance was then tested.

Conclusion and Discussion

Conclusion

1. The result of testing of fitness of instructional leadership structural equation model on school effectiveness

The structural equation model for instructional leadership affecting school effectiveness was found to fit the empirical data at a good level ($X^2= 5.861$, $df=4$, $P\text{-Value}= 0.209$, $RMSEA=0.042$, $CFI=0.998$, $TLI=0.992$, $SRMR=0.013$, $X^2/df<2$). These values met the criteria set, indicating that the model correlated to the empirical data according to the acceptance levels as shown in Figure 1.

2. The result of direct, indirect, and total effects of instruction leadership on school effectiveness

2.1 Direct effect – Three factors of instructional leadership found to have direct effect on school effectiveness, listed from high to low, are: creating of learning climate, professional development and curriculum and instructional development.

2.2 Indirect effect - Three factors of instructional leadership found to have indirect effect on school effectiveness, with direct influential coefficients from high to low, are: educational supervision, professional development, and creating of learning climate.

2.3 Total effects - Four factors of instructional leadership found to have total effects on school effectiveness, with total influential coefficients from high to low, are: professional development, educational supervision, creating of learning climate, and curriculum and instructional development.

3. The result of the test for measurement invariance of the structure equation model between new administrators and high-experience administrators

The test for measurement invariance of structural equation model to test the base-line invariance between the new administrators (with 0-10 years of experiences) and highly experienced administrators (over 11 years of experiences) showed that the model did not vary if the sample groups were different as shown in Figure 2.

Discussion

From the study of structural equation model of instructional leadership of school administrators affecting school effectiveness, the researchers found the following important issues that need to be elaborated: 1) the influential route and size of causative variables that affect school effectiveness and 2) invariance of the structural model in different sample groups. Professional development was the causative variable shown to have the highest total effect on school effectiveness both directly and indirectly. Indirect effects occurred through curriculum and instructional development and creation of learning climates. Professional development was shown to have the highest total effect because the planning for development and promotion of professional progress, promotion of action research and promotion of life-long learning for teachers bring positive impact on school effectiveness- students' achievement. All of these correlate with the finding of Mckensy (2007), that highly successful schools around the world have teachers with high capacity. Thus, the heart of learning reform lies in teacher development.

Clever, competent, and high-spirited personnel should be drawn into the teacher training process. Guskey (1986 cited in Evans, 2010) mentioned that professional development is a systematic approach that will change instruction of all systems based on the teachers' beliefs and attitudes towards classroom instruction. Studies by Cohen & Hill, 2000; Ferguson, 1991; Rosenholtz, 1989; Wenglinski, 2000 (cited in Addison, 2007) showed that students taught by teachers who have been trained professionally achieve more than students taught by teachers who have not been trained in the profession.

Educational supervision is a causative variable receiving the highest indirect effect on school effectiveness through 4 channels. This indicates that educational supervision is vital for raising the effectiveness of schools. It is a process that assists in the adjustment of teaching paradigms and hence results in teacher development in all aspects, leading in turn to good outcomes or high learner achievement. This correlates with Glickman, Gordon & Ross-Gordon (2006) which said that educational supervision is the function of school administrators to improve instruction for teachers in curriculum development, staff development, group development, and classroom action research. It also correlates with Blasé and Blasé, 1998; Blasé and Robert, 1994 (Cited in Lineburg, 2010) who said that supervision of teachers' instruction by administrators has a high impact on instruction. A study by Wolfrom (2009) showed that school administrators' supervision can indicate needs of teachers more clearly and can enhance professional development.

Creation of learning climates is the causative variable having the highest direct effect on school effectiveness and indirect effect on curriculum and instructional development. This finding showed that good creation of learning climates, including both the environment and co-living culture makes an organization effective. Freiberg (1998, cited in Thanyaporn, 2011) said that school climate enhances teaching and learning bringing about school reform. Multiple factors of school and classroom climate build an environment that enables all members in the school to reach a good level of learning achievement. This correlates with the findings of Marten (2012), which revealed that the learning achievement of students is affected by appropriate atmosphere in teaching and learning in School; most students can develop and retain their achievements. School climate is important for students in terms of education, social, emotion, and moral and physical development. Students who feel safe, are taken care of by adults, and have good friends will be respectful and have a sense of belonging to the school. They will participate in maintaining and creating a good school climate. Additionally, a good learning atmosphere in schools also build good relationships between the school and the community as shown in Communtzis-Page (1996 cited in Crites, 2008), which showed that the community will not cooperate with the school if community members do not feel welcomed by the school climate. These people need to be respected, trusted and wanted. This research suggested that linking of school atmosphere with parents and community participation is related to students' education. When a school creates a positive climate and invites others by preparing the structure that opens for external participation, the outcome is school effectiveness.

Additionally, the research findings showed that curriculum and instruction development has the least total effect on school effectiveness. Most administrators lack knowledge and understanding in implementing the principles of the national core curriculum into the school's curriculum, learning activity plan, and classroom evaluation. Blasé & Blasé, 1999; Fullan, 2001; Kouzes & Posner, 2002; Lashway, 2003; Prestine & Nelson, 2003 (Cited in Lyons, 2010) concluded that administrators as leaders in curriculum and instruction need to develop themselves intensively and become prototypes for their personnel. Administrators have to be eager in professional development. However, the curriculum and instructional development variable still showed the linear influential coefficient of 0.033 at a statistically significant level of 0.05. This suggests that school effectiveness is affected by curriculum and instructional development. According to the studies by Lyons (2010), Lineburg (2010), and Mosenthal, Lipson, Torncello, Russ, and Mekkelsen (2004) can be concluded that the

factor behind the success of schools especially in learner achievement and excellence is learner-centered curriculum and instruction development because this factor affects school effectiveness directly.

Finally, the testing of measurement invariance of the model by analysis of multi-group models between new administrators and high-experiences administrators showed that the model structure did not change. The statistics of multiple models also correlated and fit with the empirical data at a good level. This finding indicates that the structure equation model of instructional leadership that affects school effectiveness can be used for two different groups. This can be explained by the study by Taciano and Fischer (2010) who tested the invariance between groups in cross cultural research. The result would be satisfactory if the structure of the model did not change between the groups. It can be explained that informants of each group of population hold the same concept in building the structure.

Recommendations

1. Recommendations for application of the findings

1.1 From testing the fitness of the model with empirical data, this study suggests that the four characteristics of instructional leadership of administrators are very important for school effectiveness. Therefore, policy administrators should set integrated policies to develop instructional leadership for administrators in the four aspects because school effectiveness can be achieved directly or indirectly from instructional leadership.

1.2 The analysis of total effects of instructional leadership on school effectiveness showed that professional development had the highest total effects. Thus, administrators at all levels should see the importance of teachers' professional development by planning systematic teacher professional development, promoting and supporting teachers in training and continuing education, and strengthening teachers' networks.

2. Recommendations for further research

2.1 From the findings and the studied theories in the course of this research, it has been shown that professional development is an extremely important variable in the increase of school effectiveness. Hence, studies should be conducted on models for teacher professional development to support the Office of Foundation Education and Teacher Training Organizations to prepare teachers appropriately.

2.2 The educational scope should be expanded through studies of multi-level models in order to consider models at individual, organizational, or education service area levels.

Explanation

SUP: Educational Supervision

CUR: Curriculum and Instructional Development

PRO: Professional Development

CLI: Creation of Learning Climate

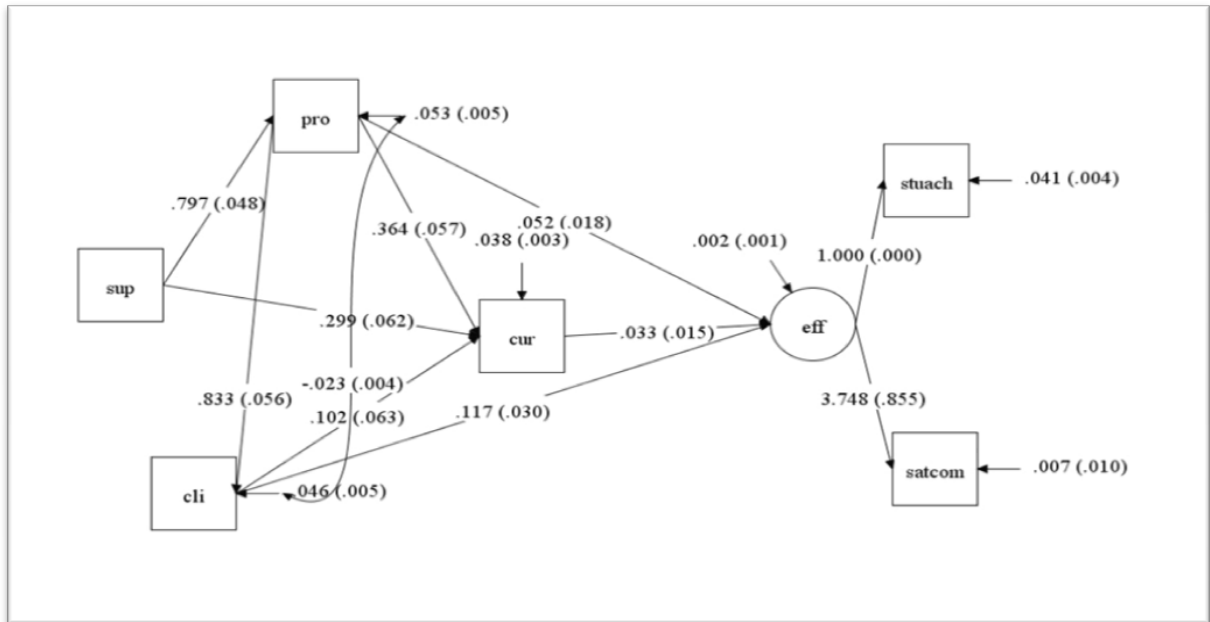


Figure 1 Results of the testing of fitness of the structural equation model affecting instructional leadership of school administrators on school effectiveness

Test for measurement invariance

New administrators

High experience administrators

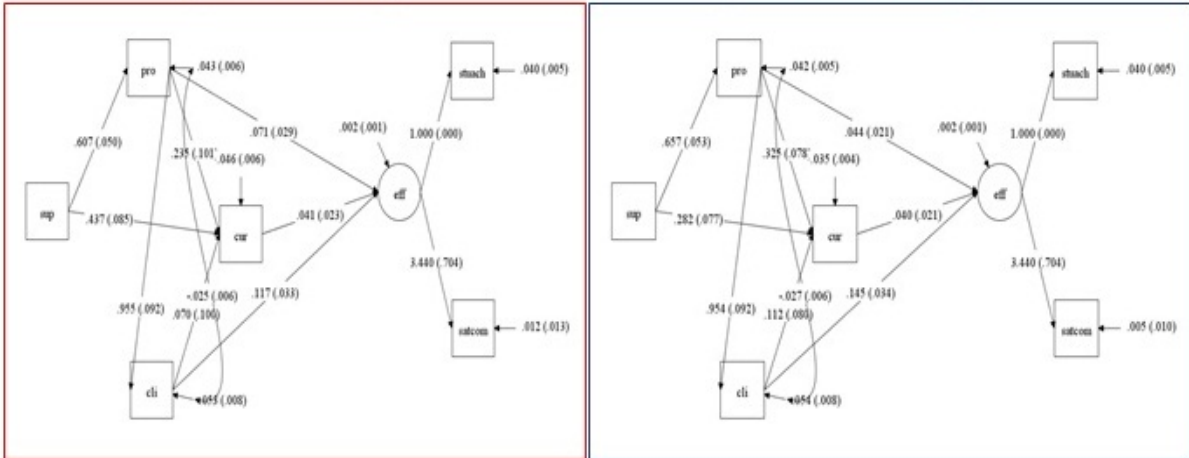


Figure 2 Test of measurement invariance of structural equation model between new administrators and highly experienced administrators

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The integrated learning of community-based tourism in Thailand

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Abstract

This paper presents an initial effort to evaluate college students' understanding of the concept of community-based tourism (CBT) based on integrated learning. In particular, it examines the perceptions of students towards the components of traditional classroom-lectures, fieldtrips, fieldworks and also business plan proposals from the students for distinctive community-based tourism destinations. Forty eight questionnaires will be distributed among the 4th year students of the International College for Sustainability Studies, Srinakharinwirot University, Thailand that undertook the course in the second semester of 2012. Data analysis is to be processed by statistical programme software and accordingly categorised into groups of data by thematic analysis. The findings revealed that students had a high satisfaction of integrated learning of CBT as they provide a holistic understanding of community-based tourism from the principles and practices based on integrated learning, as they need to study the theories and principles in the classroom, observe and survey by fieldtrips and fieldwork and practice the development of business plans for community-based tourism destinations through group work. The paper finishes with a concluding discussion and implications for future research and practitioners.

Keywords: integrated learning; community-based tourism; tourism learning in Thailand

1. INTRODUCTION

Community-based tourism (CBT) has tended to increase in popularity in recent times especially in developing countries as it is considered as the appropriate approach that can bring benefits to the community as well as encourage the traditional and cultural way of life and environmental resources (Scheyvens, 2002). In the context of Thailand, CBT development is encouraged by the government as it has been scoped in the 8th National Economic and Social Development Plan (NESDP) during 1997-2001 until the recent one the 11th NESDP during 2012-2016 as it could highlight the sustainability issues of environment and local benefits (Ministry of Tourism & Sport, 2011). In concerning the significance of CBT, International College for Sustainability Studies, Srinakharinwirot University, Thailand has provided the course ECO413 Community-based tourism development since 2002 in order to enhance students with the comprehensive ideas and concepts relating to community based ecotourism development. The expected outcome from this course is that students gain the ability to create their own business plans for communities of their choosing that can be of benefit to CBT destinations. This course has been instructed by traditional classroom-lectures, field work, field trip and business plan proposals.

However, there are still limited studies that evaluated the outcomes from a student perspective, whether or not they are satisfied and deeply understand the concept of CBT through this integration of learning. Hence, this study aims to evaluate the students' understanding of the concept of CBT and their ability to apply this

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comprehensive knowledge towards the creation of a business plan for a CBT destination and thus propose the implications for future research and practitioners.

2. OBJECTIVES

- To assess the satisfaction and better understanding of students from the integrated learning of CBT
- To propose suggestions for CBT learning which could provide benefits to community within the principles of sustainability

3. LITERATURE REVIEW

According to Hatter (1999), community-based tourism or CBT is under the umbrella of sustainability, which emerged from fears of overconsumption of resources and degradation of the environment, seeking to ensure that meeting the needs of the present did not affect the needs of future generations and focuses on well-being of people as well as the conservation of the environment (World Commission on Environment and Development, 1987). CBT can be defined as ‘a situation in which local people, usually those that are poor or economically marginalised in very rural parts of the world, open up their homes and communities to visitors seeking sustainably achieved cultural, educational or recreational travel experiences’ (O’neil, 2008). CBT’s main focus is on the host community, encouraging their involvement, participation and their benefit from tourism and also to educate and encourage them towards sustainable tourism development (Pookaiyaudom, 2012: 65). Hence, CBT mainly concerns the participation of local people who welcome visitors to seek experiences of their cultural, educational and recreational communities. However, the visitors themselves have limited evidence of responsible tourist behaviours based on environmental concerns (Sharpley, 2006; Swarbrooke & Horner 1999), consequently, pollution caused by tourists is the effect (Mowl, 2002).

To enhance the student’s grasp of these aspects, integrated learning is essential in order to form a comprehensive understanding of the contemporary issues of CBT in Thailand along with an increased awareness of responsible tourist behaviour as well as the ability to create a business plan for community based tourism using the concepts of local participation and the sustainable approach.

In regards to the term of integrated learning, it refers to ‘an educational outcome of collegiate education based on the premise that intellectual study should connect in meaningful ways to everyday life (AAC & U 2002; Wabash National Study of Liberal Arts Education, 2004; Barber, 2009). Roberts and Kellough (2000) also suggest that the integrative teaching and learning is an appropriate design to bring about effective learning as it encourages learners in establishing a constructive connection between school and life, knowing and doing and content and context. Integrated learning should have activities that can be arranged with different styles of teaching and learning; teachers may utilise problem-based, inquiry-based, project-based learning, and other approaches with appropriate arrangement, while students should study the topic through individualised and group learning in order to become more independent and problem solvers (Sintoovongse, 2005; Sintoovongse *et al.*, 2005). Hence, in considering CBT, integrated learning can reinforce learners understanding of the concept of CBT through multiple approaches which are 1) traditional lectures: to provide deep understanding of the theories and principles of CBT and discussion of case studies to experience and exchange different opinions, 2) field work: to bring up the direct experience of observation and involvement with the local community, 3) field trip: to experience the real situation of CBT, the case study of Tha Nam Kham Pob, the existing authentic CBT destination establishing by community participation and finally 4) business plan proposal: to behave responsibly by tailoring business plan creation of 10 CBT destinations that groups of students chose by themselves.

4. METHODOLOGIES

This research used questionnaires to examine the evaluation of the course towards the concept of integrated learning among the 4th year students of the college. In the phase one, eight questionnaires were handed to the 4th year students, one sixth of the total students who took this course undertook the pilot study in order to test the reliability of the questionnaires. The result from the pilot study revealed that the reliability of the Alpha-Co efficiency was 0.80 and the content reliability was considered by 3 expertise in community-based tourism and represented the index of item objectives congruence (IOC) equivalent as 0.83.

In phase two, forty eight questionnaires were distributed at the end of the course, among the samples were the 4th year students who took this course were in their final semester before completion of their bachelor degree.

The questionnaires are divided into two parts. The first part is demographic information (such as age, gender and hometown), while the second part contains the questions assessing the evaluation of integrated learning of CBT (such as satisfaction of traditional lecture in classroom, level of understanding and experience received from field work and the level of comprehensive understanding from integrated learning). Participants were also asked to provide further recommendations and/or suggestions at the end of the questionnaires.

Samples responded their opinions towards a Likert Scale. Then, data was processed by statistical programme software with higher numbers indicating high in agreement with a concept of integrated learning of CBT.

Following the previous phase, thematic analysis is used to group the data from rating scale and further recommendations into the following categories: lecture, field work, field trip, and business plan proposal. Thereafter, all collected data is interpreted and analysed for the broader objectives of the research.

5. FINDINGS AND DISCUSSION

Forty-eight questionnaires were completed by all the students who took the CBT course. It reveals that the gender ratio of the participants was 62.5% female to 37.5% male. The mean of the participants' ages was 21.71 years old, while the mean of frequency of community tourism traveling in their spare time is 4.6 times per year. The details regarding demographic information are displayed in the Table 1.1.

Table 1.1 Demographic information

Demographic Items		Frequency	Percent
Gender	Female	30	62.5
	Male	18	37.5
	Total	48	100
Hometown	Bangkok and Metropolitan area	40	83.3
	Provincial area	8	16.7
	Total	8	100
Attendance	None of absence	26	54.2
	Absent for 1-2 times	19	39.6
	Absent more than twice	3	6.3
	Total	48	100

The overall findings represented the objective of the research as they revealed that the participants had a high satisfactory level with the integrated learning of CBT which contained lecture, field work, field trip and business plan proposal (question 8). Aspects of learning by field work and field trips broaden experience, understanding of CBT and involvement with community (question 4 and 5), while the participants also highly agreed that they had better understanding in CBT after the course completion (question 9). Significantly, samples had very high agreement in the increase of awareness of responsibility towards community and motivation of visitation or recommendation others to visit CBT destinations which are the essence of CBT principles from the aspect of visitors (question 10 and 11). None of them expressed their disagreement towards the questions at any level. The items that received agreements with fairly equal levels (question 3, 6 and 7), while the items showed low agreement of CBT knowledge before attending the course and learning by lecture satisfaction (question 1 and 2). The satisfaction of students learning in CBT course is shown in the Table 1.2.

Moreover, some of respondents provided further opinions of the learning from this course which can be categorised into 4 groups and are included in the following discussion regarding the approaches of learning as following:

5.1 Lecture

This course contained 9 lectures which provided the orientation of the course, the topic of the principal concept of CBT, CBT in Thailand and the linkage to National Tourism Plan, indigenous tourism and homestay, agro-tourism and rural tourism, community empowerment and relationships with power holders, indicators of successful CBT destinations, CBT development, and finally, the business plan for CBT development. The courses provide intensive knowledge of CBT in order to enhance the understanding of the context of CBT for students. Moreover, in class discussions were also provided towards various topics to give students opportunities to exchange their opinions and brainstorm to solve the problem in the providing of case studies relevant to CBT. To evaluate the understanding of CBT principles, mid-term and final examinations were required as well as two in class-quizzes. However, as the lectures and in-class discussion remained only theory and the study of CBT principles, students could not practice what they had learned within a real situation, as the results showed a fair amount of agreement in satisfaction towards learning only by lecture. Hence, field work and the field trip were adopted in order to bring more effective learning (Roberts & Kellough, 2000) as was previously reviewed.

Table 1.2 The satisfaction of students learning in CBT course

No.	Questions	Mean	Std. Deviation
1.	Did you already have enough CBT knowledge before attending this course?	2.81	1.003
2.	Are you satisfied with learning by lecture only?	2.54	1.184
3.	Can you exchange your opinions and receive more understanding of CBT from in class-discussion?	3.67	0.907
4.	Have you broadened your experience, understanding of CBT and involvement with community ways of life from the field work of the site you have chosen?	4.10	1.036
5.	Have you broaden your experience, understanding of CBT and involvement with community ways of life from the field trip chosen by your lecturer?	4.15	0.922

6.	Do you have a broader understanding of CBT from the field trip's guest speaker?	3.85	0.875
7.	Do you agree that your business plan proposals would benefit communities?	3.98	0.785
8.	Do you agree that the integrated learning of CBT which contains lecture, field work, field trip and business plan creation would increase success in CBT learning?	4.08	0.767
9.	Do you have a better understanding of CBT after the course completion?	4.06	0.755
10.	Would you agree that after course completion you have increased your awareness of responsibility towards communities you would visit in the future?	4.25	0.786
11.	Will you want to visit or recommend others to visit CBT destination?	4.13	0.841

5.2 Field work

After students studied for 5 classes, they gained an understanding that the destination community that could be classed as CBT may include indigenous tourism, homestay, agro-tourism and rural tourism, the instructor then asked the participants to visit sites for field work in order to develop a business plan for a selected community as the final project of the course. The participants were required to gather themselves into 10 groups, 5-6 members for each group as the group learning to become more independent and gain initiative as problem solvers (Sintoovongse, 2005; Sintoovongse *et al.*, 2005), in the selected communities. Students needed to visit the site once and observed or interviewed with samples of locals or the representatives of local administrative bodies and give a presentation of the selected location addressing the scope of the reasons why the students considered particular destinations as CBT sites along with their proposed methodology to collect data. Concerning this stage of the course, students agreed that they had broadened their experience, understanding of CBT and high involvement with community ways of life as they were required to visit the site at least twice and updated with feedback such as problems and barriers to the instructor. Moreover, some participants commented that from the field work, they had gained a better understanding of the community's problems, part of which being the pollution derived from tourism business, so they mentioned that from this perspective, they felt more responsible to communities by addressing the issues of minimising pollution, especially waste, respecting community's traditions and culture, and the purchase of some local handicraft to generate income to local people. In this context, it reflects the increase of an awareness of responsibility to the community that was considered as limited in tourists' actions (Sharpley, 2006; Swarbrooke & Horner, 1999), thus field work can reinforce this aspect according to the respondents' comments.

5.3 Field Trip

Regarding the field trip, the instructor chose the community of 'Tha Nam Kham Pob' which is a new CBT route that was formed by community participation and reflects the way of life of the local Thai people in the Province of Petchaburi. In this one day field trip, the students were firstly asked to listen to the lecture by the community guest speaker about the background of community. In the stages that followed, students were grouped into 3 groups to interview 3 groups of residences who are not involved with the business around the route, the local entrepreneurs and tourists in order to develop the business plan for Tha Nam Kham Pob. In the end of the field trip, the discussion was provided and all the groups needed to submit the business plan proposal for the field

trip destination. This kind of learning would benefit students by their engaging with the locals and critically analyse the plan according to the perspectives of the 3 groups they interviewed. The participants would increase their confidence when they created their grouped business plan proposal. Overall, students were satisfied and perceived that they had broadened their experience and better understood CBT by interacting with the local's way of life through field work, nevertheless, some of them mentioned that the local guest speaker might speak towards irrelevant topics that rarely brought about a better understanding of the case, whilst the others agreed that to interview locals and tourists in different groups provided more understanding leading them to the strengths and weaknesses of the site more effectively. Another interesting point is that some of the respondents commented that their visitation to this local site brought them a sense of existential authenticity that they could participate with the locals' simple lifestyle which they could not have experienced at home, encouraging the idea that more than one field trip would be better. Considering this point, it is true that the majority of students that undertook this course are from Bangkok and the metropolitan area, so it can be representative that the target market of CBT tourists are most probably people from city life who seek/find appeal for the simpler way of life of local communities that they cannot experience where they live.

5.4 Business plan proposal

At the essence of CBT the consideration of how the community can benefit from local tourism, business plan proposals should help and highlight aspects to benefit communities. This section of learning is connected with all aspects that the students requires to develop a business plan for a selected community based on the principles and theories from lectures, the data collection from fieldwork, the group learning practice from field trip assignment while also the instructor provided the consultation week for students to discuss the process and address any problems facing the project. In the end result, there were 10 business plan proposal projects from a variety of CBT destinations such as Mon village as an indigenous tourism destination, Ban Khun Samut Chin as an agro-tourism site, and Bang Nam Pueng Market as a floating market, a famous site of Thailand that retains local involvement. As a result of this, students fairly agreed that business plan creation would increase success in CBT learning because some of the respondents were unsure if those plans would benefit communities or not as they had limited time to be involved with their selected communities, so it may not wholly representative of all aspects of CBT planning. Moreover, some participants commented that to create a business plan, they needed to analyse data and link the project to the theory and principles they had learned from the lectures, hence they felt they may present the wrong concept from what they have studied through. Nevertheless, the other respondents mentioned that they can apply the comprehensive knowledge from the integrated learning to this business project. To conclude the expected outcome of the CBT course, the majority of students revealed that after the course completion, they had a better understanding of CBT which was increasingly higher than before attending the course (question 1). Furthermore, increased consideration for other aspects, indicated in examples of opinions towards responsibly awareness, it can be summarised that the students reached the intended outcome of the course derived from the integrated learning.

6. CONCLUSION AND SUGGESION FOR THE FUTURE RESEARCH

From this research, it can be concluded that integrated learning approaches should be attached to the learning of CBT and implemented within the course as it would provide better, in depth understanding and enhance the experience of the learners. Moreover, the creation of business plan proposals by students are essential, although few students remarked uncertainty towards the effectiveness of their planning due to limited time or data, students questioning whether or not their own plans really would benefit the community is indicative that essence and theory of CBT is carried on into practical application, such practice of planning, field work and research is invaluable, opening up suggestions for communities and the potential for new innovations. To create more

business plans to various communities, would expand the benefits to a variety of local destinations as many of the plans included suggestion for local pride and wisdom reinforcement linked to the sustainability of community. Another significant point from this study is that students can both respond as a tourist but also perform as planners. Therefore, having an enhanced understanding of CBT and representing the local voice through planning, the students are as a beneficially long term model example for tourist responsibility through their future practice, conduct or influence such as through Word-of-Mouth which is the most incredible source to motivate tourists visiting sites (Govers, Go & Kumar, 2007). Hence, it can be summarised from this research that apart from integrated learning, business plan proposals will be the outcome that not only represent the understanding of CBT principles but also the adaption of knowledge from lecture, field work and field trip to benefit CBT destinations.

As this research only focused on learning CBT in Thailand, the future research may consider of the comparison of learning CBT in other countries in the regional of ASEAN as in this area will become the Asean Economic Communities (AEC) in 2015. Therefore, to study the learning of CBT in other countries in this region may lead to a better understanding of CBT and develop the new routes of CBT that can effectively compete in tourism industry in the future.

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The investigation of school readiness level of six years old preschool children in terms of different variables.

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Abstract

The purpose of this study is evaluation of school readiness level of six years old preschool children within the framework of different variables. This study is a survey model and includes the steps on surveying the six years old children who attend preschool in 2010-2011 academic year in Sakarya. In this survey, Demographic Information Form, Bracken School Readiness Assessment was as data collection tools. The gathered data were analyzed using SPSS 16 program. At the end of this research, At the end of the research , it was concluded that the level of parents education had a strong positive effect on the children's school readiness. The jobs and age levels of the parents had also impact the level of children's school readiness.

Keywords: preschool education; school readiness; Bracken; early childhood.

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1. Introduction

Nowadays, the importance of preschool education, are now accepted by almost everyone. During this period, for the researchers, the child is seen as a period of higher learning potential. The children who grow up in the appropriate physical and social environmental conditions and healthy interaction environment show a more rapid and successful development (Omeroglu and Can Yasar 2004).

Healthy and have the desired behavior, educate children, according to their developmental characteristics and needs of these features are dependent on the knowledge of what's on. Developments in early childhood, preschool education, the parents no longer had ceased to be a subject alone is capable of doing so. At this point, pre-school education institutions have an important role (Oktay 2002).

Objectives and tasks of national education, pre-school education is determined in accordance with the general objectives and principles (MEB 2012). They are:

1. Children's physical, mental and emotional development and ensure that they acquire good habits;
2. Prepare them for primary education;
3. Terms and families for children from disadvantaged background to create a joint training environment;
4. Turkish children is to provide accurate and nice speeches.

School Readiness, the child's cognitive, social and emotional development level is defined as the minimum qualifications and meet the demands of school (Lemel et al. 2007). School Readiness, is implementing the child's basic education and skills needed to win before you begin is defined as a whole (Bierman et al. 2008; Kagan 1990).

Starting school is an important process for the period of the family and children. School readiness of the child should be received by the school to begin. Generally, each child (especially pre-school education is very widespread nowadays) will reach the maturity level that comes around the age of six. However, due to individual differences, reaching the age of maturity of the school may vary. Although the steps the same for all children in all areas of development, some children climbing the steps, others may be faster or slower than. (Dogus College Guidance Services 2006)

Children starting school, which reached the school readiness remains elusive. Not ready for a child to an environment, forcing it to force the reading and writing, the child against the negative responses to school failure and school cause to live (Yilmaz, 2003).

Children will enter the environment during the pre-primary education to prepare, to make the necessary environmental regulations and steer children according to individual characteristics, will prevent the children to live in the negative experiences (Yilmaz 2003).

This main aim of the study were to evaluation of school readiness level of six years old preschool children within the framework of different variables (gender, mother-father ages, jobs and education level).

2. Methodology

The sampling, simple random sampling method selected public elementary schools in the heart of Hendek kindergarten due to the ongoing 119 (49.6%) were female and 121 (50.4%) males constituted a total of 240 children. Demographic characteristics of families of these children is examined, the vast majority of mothers in terms of educational status of high school graduates (37.5%) and primary school graduates (29.2%), the vast majority of parents were high school graduates (37.5%) and university graduates (34.6%) was found. The vast majority of parents in the study group 31-40 years (77.5%, 82.5%) in group shows. Looking at the vast majority of

mothers in terms of occupations were housewives, while the vast majority of fathers observed that self-employed. Considering the number of siblings and siblings of children according to the gender distribution of the vast majority of children with a sibling (50.4%) seems to possess.

2.1.Data Collection tools

2.1.1.Bracken School Readiness Assessment -3

Bracken School Readiness Scale, 3 years, 0 months (3:0) to 6 years,11 months (6:11) in order to measure the levels of school readiness of children the Bracken (2002) developed by. Scale, Colors, Letters, Numbers / Counting, Sizes / Shapes, including comparison and five sub-tests and 85 items. Located on the sub-scale of the following sub-dimensions of the tests measure the levels of school readiness of children.

Colors Subtest: basic color concepts for this sub-test showing the main colors in all languages, includes intermediate colors. Consists of 10 items.

Letters Subtest: This subtest consists of 15 items and includes uppercase and lowercase letters. Numbers / Counting Subtest: This subtest to recognize the one-and two-digit numbers (Numbers) and consists of the number-object mappings. (Counting) consists of 18 items.

Dimensions / Comparisons Sub-Test: This test lower one dimension (eg, long (tall) vertical length of the concept, as well as (long) defines the length of the horizontal), the two short-Dimensional (Short) define the concept again, both vertical and horizontal length) or three-Dimensional big (big) and small (small) size of such concepts must also be considered significantly different from each other.) Additionally, this sub-test objects from one or more children prominent feature of the pairing, discrimination, and measures or benchmarking skills. This sub-test consists of 22 items.

Shapes Subtest: This subtest consists of one-, two and three-dimensional shapes. One-Dimensional, curve, angle, includes such concepts as the diagonal. Two-Dimensional, circle, square, triangle, cube and pyramid-like concepts such as concepts and includes a three Dimensional. This sub-test consists of 20 items. School readiness of these six sub-test total score (School Readiness Composite-SRC) is called.

2.1.2.Scoring Bracken School Readiness Scale-3

Bracken School Readiness Scale-3 for the lower test items and record the picture book form, consists of the application. The number of correct answers at the bottom of each subtest, the child's test scores are collected. The sum of the lower test scores School Readiness Score (SRC) states. Bracken School Readiness Scale 3:0, 6:11 developmental levels of the concept of children between the ages of art-minus one standard deviation is calculated by.

2.1.3.Adapting Bracken School Readiness Scale-3

Bracken School Readiness Scale for Turkish version before the English form translated into Turkish by two experts. Then dial back-translated into English by two expert evaluation form technique and compared with English expressions. Cooperation with the Turkish to express a form of English that was translated into English form. Later translated into Turkish by the Bracken School Readiness Scale two Turkish language specialist analyzed in terms of clarity of the statements made and the necessary corrections to the form given its final form.

The items on the children's psychology translated into Turkish in order to evaluate compliance have been consulted by a specialist working in the field of psychology. Turkish version of the scale of child development / pre-school education by three experts working in the field and the scale of the Turkish Culture in the expression evaluated for its suitability and appropriateness for the children were asked to rate pictures.

For this purpose, "Expert Opinion Form" was prepared. That will contribute to the study of child development as a volunteer, and training / working in the field of preschool education, as well as three experts Expert Opinion Evaluation Form, a copy of the original scale, the scale of the original English Turkish Evaluation Form Evaluation Form are given.

Consensus of experts they deem appropriate with substance, form of expression and Turkish as well as pictures taken from the scale. Matter experts expressed suggestions for correction and pictures on conducting the necessary corrections were made. Under Sub-scale 2, Turkish alphabet, for example non-"X, W, Q" in the same order of the letters ", V, Y, G" are included. At the same time in the Sub-scale 3 of the "forty-one, eleven, ninety-five, twenty-seven, fifty-three" in terms of the number sequence from easy to difficult to adhere to the principle "eleven, twenty-seven, forty-one, fifty-three, ninety-five," are .

Subtest 5, "square, triangle, cone, ring," to be conformity with the principle in terms of patterns from easy to difficult sequences "triangle, square, cone, and ring" organized. Again Subtest 5, "tile" instead of the word "rhombus" was organized by writing the word.

Form of the scale was created based on expert opinion were considered to have the validity of coverage. A small scale first group (n = 5) on the intelligibility of the statements and pictures by children to get an idea about the average time to evaluate and applied. Scale trial of an application made in the form of statements and images were understood by children. As a result, the concept development of children six years of age in order to measure the form of Bracken School Readiness Scale-3 trial is given the final shape.

2.1.4.Bracken School Readiness-3 Reliability

Cronbach's alpha internal consistency reliability coefficients calculated for the average of the scale was calculated as .952. Subscales of the scale, Cronbach Alpha internal consistency reliability coefficient for the .954 for subtest Colors, .940 for Letters Sub-scale, .946 for subtest Numbers, -.896 for Sizes- Comparisons Sub-scale, .871. for Shapes Sub-scale was calculated. According to these values is demonstrated, that the internal consistency of the scale (Buyukozturk 2011).

2.1.5.Procedure

Scale, were administered individually by the researcher. Practice in a quiet environment, where only the materials needed for measurement, including a desk and chair, in classrooms or meeting rooms were empty.

Age and individual characteristics of the application time (the concept of data, note duration, etc.), Depending on the range of approximately 20-45 minutes.

3. Findings

Research findings are shown tables below. Table 1 shows the results of Mann Whitney-U analysis on gender variable. As shown by Mann Whitney U test results, there is not a meaningful difference between childrens school readiness with their gender ($U= 7086,500$ $p>0.05$).

Table 1. Mann Whitney-U test results of gender variable.

Gender	n	Mean Rank	Sum of Ranks	U	p
Female	119	121,45	14452,50	7086,500	,833
Male	121	119,57	14467,50		

$p \leq 0.05$

The results of Kruskal-Wallis test related to school readiness of preschool Children with respect to their parental variables are indicated in Table 2. According to the results given in Table 2, school readiness of children varied with respect to their parental variables. As seen in Table 2 the school readiness level of children increases with the increase of parents education level (Mother/ X^2 : 22,681, $p < 0.05$; Father/ X^2 : 21,472, $p < 0.05$). As in this findings with the increase of parents' age also increase school readiness level of children (Mother/ X^2 :7,379, $p < 0.05$; Father/ X^2 :21,077, $p < 0.05$).

Findings and results show that childrens school readiness levels varied with the respect of morher and father's job status. As seen on the Table 2 school readiness level of self-employed mother's children are higher than the others. Also pensioner father's children have higher level of school readiness rather than self employed or unemployed fathers.

Table 2. Results of Kruskal-Wallis test related to the school readiness of children with respect to parental variables.

		n	Mean Rank	sd	χ^2	p	Signifant Difference
Mother Education Level	Primary School	70	88,77	3	22,681	,000*	1-2, 1-3, 1-4
	Elementary School	32	126,03				
	High Schol	89	129,86				
	University	49	145,21				
Father Education Level	Primary School	28	74,71	3	21,472	,000*	1-2, 1-3, 1-4, 2-4
	Elementary School	38	107,12				
	High School	91	120,70				
	University	83	141,86				
Mother Age	20-30	50	99,88	2	7,379	,025*	1-2
	31-40	186	126,92				
	41 age and over	4	79,88				
Father Age	20-30	23	70,20	2	21,077	,000*	1-2, 2-3
	31-40	198	129,88				
	41 age and over	19	83,63				
Mother Job Status	Housewife	168	114,22	3	11,865	,008*	1-4, 3-4
	Officeholder	33	132,80				
	Employee	14	97,29				
	Self-employed	25	159,46				
Father Job Status	Unemployed	8	74,31	4	11,535	,021*	1-5, 2-5, 3-5
	Officeholder	57	121,39				
	Employee	58	109,86				
	Self-employed	112	125,45				
	pensioner	5	196,80				

$p \leq 0.05$

4. Conclusion and Discussion

This study shows that generally there were high levels of school readiness amongst the six year olds related to their families characteristics. The results show that childrens gender did not a meaningful difference on school readiness. This could be probably explained by that gender is not only variable on school readiness level. This finding is consistent with the findings of Cinkılıç (2009), Oktay (1983) and Arıkök (2001) that support gender could not be only variable to evaluate the school readiness of the six year old children.

The results show that the level of school readiness for children whose parents education level and ages higher than those children whose parents are lower education level and ages. These findings about parents education level are consistent with the findings of the study by the Fitzgerald, Spiegel and Cunningham (1991), Unutkan (2003), Yazıcı (2002) that support parents education level make a deep impact on childrens academic success and school readiness levels. But findings about parents ages are contrary to the findings of Yazıcı (2002) and Kırca (2007) that parents ages are not enough to impact the school readiness generally.

Also the results show that the level of school readiness for children whose mothers are self employed higher than the orthers. And children whose fathers are pensioner have higher school readiness levels than the others. This

results are contrary to Ergül (2007) that there was no significant difference between the parents job status and childrens school readiness.

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The issue of children with visual handicap school matureness as one of inclusion determinants

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Abstract

What should we imagine when we hear the term school matureness? This term contains physical, psychical and social readiness of a child to enter the primary education system. The benchmark for entering is set in the Czech republic by the age of six, when certain criteria are met also by the age of five. In the case of children with visual handicap, the benchmark seems not to be ideal, so we usually talk about the delay of entering the primary education system. If we talk about those children, it is necessary to take into account the full scope of the progress pattern. The most frequent reasons for the delay are for example insufficient work pace, low perception level or intellectual abilities.

Keywords: school maturity; visual disability; education; diagnostics; inclusion.

1. Introduction

The issue of **school maturity** is a theme of enormous extent as well as considerable complexity, and it depends on the point of selected view when examining this field. Then it is more effective to clearly determine the boundaries of this term and its specifications.

Mertin and Gillnerová (2003, p. 219) define school maturity as follows: “Traditionally, school maturity refers, almost exclusively, to children. Their current cognitive, perceptive social and working maturity/readiness is being examined; their development in the earliest infant stages is being taken into account, as well as their actual health condition, laterality, the various aspects of their verbal communication, graphomotorics, etc. A child with certain parameters is then regarded as mature or ready for commencing school attendance.”

Bednářová and Šmardová (2011) state that: “school maturity can be defined as reaching such a stage of development (in the physical, mental, emotional and social spheres) that a child is, without difficulties, capable of taking part in the education process; or at least without major difficulties, and preferably with joy and eagerness.”

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For a long time, the notion of **school readiness** was attached to the term of school maturity. Vágnerová (2000), however, comments on this issue that unlike school maturity, the development of school readiness is, to much greater extent, affected by learning. Kindertgartens and family thus play an essential role here.

Zelinková (2001, p. 111) defines school readiness in the following way: *“the notion of school readiness (competency) refers to more than biological maturing, to the level of pre-school preparation in terms of the child’s abilities, the influence of the environment and the family upbringing.”*

According to the authors Bednářová and Šmardová (2011), school readiness in principle encompasses competencies in the cognitive, emotional, social, working and somatic fields acquired and developed by the child through learning and social experience, especially in the kindergarten.

Růžičková (in Finková, Růžičková and Stejskalová, 2011) mentions the findings of Zelinková (2001) in relation to the terms and definition of both – school maturity as well as school readiness. *“We consider the term school competency as a suitable superior concept of school maturity and school readiness, which encompasses all requirements for the future first-class pupil from the psychological, medical, pedagogical and special-needs education point of view. The term is also fully acceptable for the purpose of the special-needs educators.”*

What is important then? Regarding the issue of both “school maturity” and “school readiness”, it is necessary to direct our attention to all aspects associated with the child’s development, whereas a substantial role is played by the involvement of the family and the pre-school facility. Cooperation between these two subjects is always required, together with communication, respect towards the activities of the other party (both from parents towards the kindergarten and vice versa) and mutual support. Effective interaction between the two parties has, among others, also a preventive character when it allows for partial elimination of the chances of school failure in the following period and also for enhancing the quality of life for the child’s future Růžičková (2011).

Further, we intend to tackle the issue of the correlation between school maturity and inclusion. This relation is evident from the point of view of incorporating a child into one of the educational trends in the Czech Republic, which significantly differs from the main stream. Here, we either speak of “special-needs” education or, on the contrary, of the so-called “inclusion”. This decision is made by the parents just at the moment of registering the child to compulsory school attendance. The level of the child’s school maturity is thus often one of the most crucial arguments for enrolling the child in a standard school, or, on the contrary, in a school specialised in children with certain impairments. A significant role is also played by the fact that whether the commencement of the child’s school was already deferred by one year or not.

Inclusion can be defined in the following way. Etymologically, the notion inclusion can be derived from the Latin word “inclusion”, which means a process of including or incorporating something within a whole. In case of people with specific needs, inclusion is associated mainly with the field of education, or possibly with socialization, i.e. social inclusion. Inclusion is interpreted as a condition when a person with a handicap is born into a society, which accepts dissimilarities and finds being different as normal. Inclusion is based on the acceptance of dissimilarities, whether it is gender, race, nationality, social background or a health condition. In accepting a child with impaired vision and incorporating it to a common education system, it is more accurate to speak of a form of integration than inclusion. Nevertheless, in a certain form and in respect to the society development and current tendencies, our society is advancing closer to near actual inclusion more than ever before. Inclusive education means arranging a standard school in such a way that it can facilitate adequate education to all children, regardless of their individual differences, the requirements for special needs and the resulting performances.

2. Diagnostic process focused on school maturity in children with visual impairment

Evaluating school maturity (and readiness) is an act of gathering information on the entire development of the child towards enrolment in compulsory school attendance. At present, assessing school maturity is most often carried out at the following stages: **evaluation at enrolment in the first class**, **evaluation at the school-consultancy facility** (mainly special-needs education centres or educational-psychological consultancies). However, a third subject - the **kindergarten** - may enter into this equation.

From the point of view of prompt intervention, finding the shortcomings in school maturity during enrolment in the school is rather belated. However, it is not rare that an educator discovers certain handicaps in children only at enrolment to school and only then recommends them for detailed examination in one of the school-consultancy facilities.

In case of children with visual impairment, the standard practice is that these children are enlisted in the records of the school-consultancy facilities, the special-needs education centres for the visual impaired, where each respective child is long-term monitored and the diagnostics pertaining to school maturity is then automatically conducted from the perspective of special-needs education and psychology.

The third possibility of how to diagnose school maturity is through the kindergarten teachers. This method of monitoring the child is rather marginal, but it can indicate a lot about the child and his/her prerequisites for school maturity and readiness. The outputs generated from a kindergarten teacher can be used for various purposes:

- The teacher can use this diagnostic tool as a benchmark for his/her own work, further on how to work with the child, what to develop towards the child's school readiness, etc.
- The outputs can serve for the teacher as a basis for recommendations to the parents, as to how to work with the child in the domestic environment.
- This diagnostic tool can be also used as an underlying material for further examination at a school-consultancy facility, in terms of diagnosing school maturity both from a psychologist and a special-needs educator.

In our text, we aim to focus more on the issue of diagnosing school maturity by a kindergarten teacher.

2.1. Conditions of the diagnostic process carried out by a kindergarten teacher

The diagnostic process in kindergartens tends to be related to and construed as a form of a continual diagnostics when a child is evaluated regularly in the course of the entire kindergarten attendance, i.e. 1-4 years. The child's development within the kindergarten focuses on a single aim – to prepare the child for primary school attendance, naturally taking into account the developmental specifics of each individual. The teacher knows the child well, the child knows the teacher and the environment and that is why, also from the point of view of the diagnosing school maturity, we prefer to conduct the examination in conditions that are relatively amicable and natural to the child. Diagnostics in kindergarten is favourable also due to the fact that the performance of a child coming to a school consultancy facility only a few times may be hindered by the rather unknown environment and the hitherto "unknown" people who are expecting to see a certain accomplishment at a certain given moment.

Another argument supporting our attempt at conducting the diagnostics in kindergartens results from the **teacher's profile** and the competencies, when it is obvious that a teacher should be capable of conducting the diagnostics. A teacher's profile includes, according to Průcha (1997), four fundamental moduli relating to

profession/subject, teaching/psychology, and the general and practical competencies moduli. According to Spilková (in Nezvalová, 1998), the following teacher's **competencies** can be subsequently deduced - competencies relating to profession/subject, psycho-didactic, communicative, organizational and managerial, **diagnostic competencies**, interventional and consulting competencies and the ability of reflection on one's own activities. We assume then that a kindergarten teacher is not only able to use this diagnostic tool for assessing school maturity but also to evaluate the results for his/her needs.

What do we stem from? For the purpose and possibilities to conduct the diagnostics of school maturity in a kindergarten, we apply the general well-established diagnostic tools. In general, these methods include: **anamnesis or history taking, dialogue, tests, and the analyses of activity results**. In terms of a concrete diagnostic approach, we focus on the following fields: **motorics, perception, communication, mental powers, laterality, spatial and time orientation, social factors, psychical and physical characteristics, behaviour, and the level of abilities and skills**.

In this respect, there exist many standardized as well as non-standardized diagnostics tools, which are, however, usually applied separately. Due to effectiveness and for the purpose of basic orientation of a kindergarten teacher, **it would be suitable to use only one time-undemanding diagnostic tool**. This diagnostic tool should be designed to include all basic fields necessary to monitor children, to be brief and it should be possible to interrupt the process due to the child's needs. We find it also necessary to abide by the rules of visual hygiene during conducting the diagnostics in children with visual impairment. Another important factor is the creation of such a diagnostic tool, the results of which might be applicable both for a special-needs kindergarten teacher for visually impaired children and for a standard teacher from the kindergarten where the child is integrated.

3. Screening of school maturity in short-sighted children

The issue of school maturity from the special-needs-education point of view is one of the project inputs, which the authors are working on at the moment. This project is called "Initiatory analysis of the conditions for inclusion of people with specific needs", which is solved within the student's grant competition at the Palacký University in Olomouc (Czech Republic) Pdf_2013_016.

One of the objectives of the project was to design and verify the diagnostic tool (screening), which would correspond with the needs of kindergarten teachers and with the conditions mentioned above. Further on, we are going to speak of screening. This **screening** is designed as a fundamental orientation (exploratory) tool, which should indicate to a kindergarten teacher whether the short-sighted child appears to be mature for entry to compulsory school attendance or not.

3.1 Definition of procedures and methodology

In principle, the authors followed their studies of professional literature relating to the diagnosis of school maturity in children. Further on, the issue was consulted with a psychologist and a special-needs educator operating in a special-needs-education centre for visually impaired children. At first, it was ascertained which diagnostic tools (standardized as well as non-standardized tests, clinical methods, development scales, etc.) are available for examining school maturity. School consultancy facilities carry out the diagnosis from a complex point of view, i.e. they apply more diagnostic tools as per need. The application of this practice is not suitable for kindergartens, both for time and professional reasons. Consequently, a complex **screening** was designed as a fundamental orientation (exploratory) tool.

From the methodological viewpoint, this can be classified as a qualitative research. We regard the following **definition of qualitative research** by Švaříček, Šed'ová and coll. (2007, s. 24) as befitting: *“The substance of the qualitative research is a wide-spread gathering of data without determining the basic variables at the beginning. Similarly, no hypotheses are set in advance and the research project is not dependent on the theory established prior to the research. The aim is to investigate, in detail and in relevant context, a certain loosely defined phenomenon and to present the maximum amount of the collected information. The logics of the qualitative research are inductive; only after gathering a sufficient amount of information can the researcher begin to search for regularities, conceive the preliminary conclusions and only then look for further arguments supporting these conclusions from the data”*. The output is seen, by the authors, in a newly formulated hypothesis or theory. They continue to quote Strauss and Corbin (1999) that the methods of qualitative approach are applied for discovering and understanding the very substance of phenomena still rather obscure for us so far. Simultaneously, the method might also uncover some new views on the phenomena apparently well-known to us.

By a definition derived from empirical medicine, which works with this term, **screening** can be specified as a method of detecting the early forms of disorders or deviations from the standards within a certain population through tests. *Slovník cizích slov.net*, [on line]. [cit. 12.5.2013] Available from: <http://www.slovník-cizich-slov.net/screening-skrinyng/>

In medical interpretation, screenings play an important role especially in prophylactic medicine and are a part of the routine medical examination. Medical screening brings about two advantages – an impulse to a change and early discovery. For the purpose of this work, it is possible to find an analogy with defining the term screening. **It is a method of finding children who are not mature enough to commence compulsory school attendance and thus differ from majority population of children at the given age range.** On the basis of the conducted screening, parents as well as educators acquire information revealing the pending risk of failure in school performances and, at the same time, the fields where the risks occur are indicated.

In the course of creating the screening itself, we took into consideration the need to embrace the following fundamental fields to be monitored in a child:

- **Maturity level of cognitive functions:** here, we focused on evaluating the motoric, perceptive and communicational levels. Pre-mathematic images were also assessed.
- **Monitoring of ability to work (working prerequisites and habits)** concentrated on measuring attention and evaluating working maturity.
- **Maturity level of the personality (emotional-social maturity)** required targeting the evaluation of the emotional and social maturity.
- **Evaluation of the somatic development and the health condition** was focused, above all, to the specification of the diagnosis and the related aspects.
- **Evaluation of laterality** in terms of focusing on the phenotype.
- **Evaluation of mental powers** subjected to examination, e.g. ability to differentiate objects by certain criteria, generalization of the findings and mental processes.
- **Evaluation of memory** measured the skill to memorize intentionally, endurance, etc.
- **Evaluation of the self-service level.** In the given case, it was necessary to monitor self-service activities in every-day life.

Certain parts of the screening were adjusted to the needs of the short-sighted children – e.g. pictures respecting principles of eye hygiene (first of all, requirements for clear contrast); the picture size was also taken into account. It was, however, possible to use standard sizes providing that the child can use, e.g. table camera magnifying glass.

Among others, the research focused on verifying the possibilities to apply screening in short-sighted children. Prior to the core research, the authors themselves conducted pre-research using the compiled screening and based on the ascertained data, individual **case studies** of tested children were elaborated.

A case study is defined by Průcha, Walterová and Mareš (2001, p. 104) as follows: “*a research method in the empirical education research when the examination is subject to the individual case (e.g. pupil, small group of pupils, individual class, school, etc.), described in detail and explained thoroughly to such an extent, which is not possible to achieve in collective gathering. The advantage of this method is the possibility of deeper knowledge of the substance of the case; the disadvantage is the limitations in generalizing the outputs*”.

It can be added that the adjective “*empiric*” stands for the basic needs of the case study based on the collection of real facts related to the research object. According to Yin in (Švaříček, Šed'ová and coll., 2007), a case study is considered to be a comprehensive strategy of the scientific research, which shows certain characteristics, such as:

- The case as a subject of the research of the case study is an integrated system with defined borderlines (spatial as well as time limits),
- Investigation of the basic phenomenon is always done in real context and under conditions as close to natural occurrence of the phenomenon as possible,
- All available sources and methods of data gathering are applied in order to acquire the relevant information.

In the case of this research, the **case study is focused on children with short-sightedness in the diagnostic process aimed at determining school maturity**. The individual above-mentioned characteristics are fulfilled as follows:

- Within the framework of the case study, children with short-sightedness were examined in a specific time span of 4 hours/1 child in the period from January to June 2013. The selection of children was targeted, the fundamental criterion is the level of the visual impairment “short-sightedness” and also that the children be born between 01.09.2005 and 31.08.2007, who will commence (or should commence) compulsory school attendance on 01.09.2013 according to the valid legislation of the Czech Republic.
- Examination is conducted in conditions that are very natural for children, i.e. the kindergarten they regularly attend.
- Relevant data is obtained from several available sources, such as screening and its evaluation, child monitoring and the study of the child’s documentation presented in the form of casuistry (form of a case study).

Our research objective focuses on examining several cases with the aim to verify the applicability of screening in short-sighted children and gathering the necessary underlying material confirming or contradicting the usability and needfulness of the compiled screening.

4. Pre-research and its results

Pre-research was conducted mainly in Moravia (Eastern part of the Czech Republic) located in the former district of Olomouc on the grounds of good accessibility and satisfactory long-term cooperation with the Special-Needs Centre for visually impaired children in the given region, and in Prague (the capital of the Czech Republic). 10 children took part in the pre-research. **The basic research investigations** shall be conducted in the following period at various locations all over the Czech Republic, depending on the possibilities and the availability of individual children recommended by particular special-needs centres for the visually impaired.

The selection of children was targeted, the basic criterion being the level of the visual impairment

“short-sightedness”. All children were born between 01.09.2005 and 31.08.2007 who will commence (or should commence) compulsory school attendance on 01.09.2013, according to the valid legislation of the Czech Republic.

The research was conducted in natural conditions well-known to the children – in their respective kindergartens.

Table 1. Case study 1. Girl K. J., 5 years and 6 months, (severe short-sightedness, cortical blindness, hydrocephalus)

Field of fine and rough motorics	
Rough motorics	Within standards
Fine motorics	Shortcomings in the field of fine motorics, lack of skills when working with small objects, cutting, etc.
Field of graphomotorics	Difficulties with gripping the pencil. Difficulties in painting: drawing a human figure is at infantile level, the picture is still missing significant details. So far, she is not able to draw a circle, a straight line, she has difficulties in copying a group of dots (difficulties with a single dot as well).
Laterality	Phenotype: the girl is left-handed.
Perception	
Visual perception	With respect to her diagnosis, certain problems with distinguishing colours (similar in shades) may occur occasionally.
Acoustic perception	Within standards
Speech and skill to express oneself	
Contextual side of speech	Within standards
Formal side of speech	Within standards, only pronunciation of “ r and f” is disturbed
Mental power	Minor shortcomings in the field of general knowledge in relation to acts, objects and the Nature.
Attention	She can keep her attention focus for a limited period of time. Concentration of her attention depends more on the task to be done.
Memory	Minor disproportions occur.
Pre-mathematical images	She is not mature in this field. She needs to be trained with illustrative objects. The activity has to be changed frequently!
Emotional maturity	She finds it occasionally difficult to postpone fulfilment of her wishes. She is sometimes impatient.
Social maturity	Within standards
Self-service skills	Within standards
Working maturity	She manages to fulfil the submitted tasks, respects the work routine, but only under the guidance of a suitable educator.

The girl was born prematurely in the 7th month of pregnancy. She is a twin. At present, she attends kindergarten. She is allocated to a group of children with diagnosis of autism, mental retardation and ADHD.

Examination results by applying screening:

With respect to the above-stated outputs, the girl is recommended to practise exercises for developing fine motorics so that she is, in case of further deterioration of her visual impairment, able to use the braille alphabet and to orientate herself in micro-space. Difficulties in graphomotorics may, in the future, lead to problems in the practice of writing skills. On-going speech therapy is required. Intentional attention is, for the time being, rather short and does not correspond with the average for this age group. Frequent motivation to work is necessary. She is not mature in the field of pre-mathematical images. Certain problems occur with being patient; she does not accept putting off satisfying her needs. She is within standards in the fields of social maturity and self-service. Occasional supervision and regulation from a teacher is required in the field of work maturity.

Taking into account the diagnosis, the age and the examination results, it is recommended to defer regular attendance due to the overall immaturity of the girl. It might be desirable to change the kindergarten or, at least, the class. The class the girl attends is not an impulse or interesting for her any more. There exists a likely relation between the general immaturity of the girl and the uninspiring and un-motivating environment of the kindergarten class. Deferring school commencement by one year and changing the kindergarten should allow her a satisfactory start to compulsory school attendance.

Conclusion

The study brings a view of a specific issue of diagnosing school maturity in short-sighted children. The objective of the study was to show that even a kindergarten teacher is competent enough to carry out the diagnosis and is able to draw general conclusions from the research outputs, which is important for the educator as well as for the child's parents. The created screening serves then as a fundamental tool indicating to the people involved whether the child is ready for compulsory school attendance or not. The application of screening and its results was demonstrated in the brief case study of a girl. With respect to her diagnosis and the examination results through screening, it is evident that the girl requires a one-year deferral of compulsory school attendance. In the future, it might be, however, possible to consider inclusion of the girl, owing to her abilities and the absence of mental retardation. In a year's time, the girl will undertake another control examination at the school consultancy facility and, based on the acquired results and subsequent discussion with her parents, a suitable form of school education will be devised. In the Czech Republic, it is always up to the child's parents to make the final decision.

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The leading as a factor of readability: development of the methodology for educational use

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Abstract

The work is dedicated to the development of methodology for assessing the readability on paper substrates (as textbook samples) and laptop screens (as web content samples) and analyze the influence of leading on the reading speed. New approach: the readability was assessed by the continuous reading speed of dissociated texts on paper substrates and laptop screen. The research was conducted on the sample of 100 student age persons in Ufa city, Russian Federation. It is found that the dependence of continuous texts reading speed on the paper substrates and laptop screens from the leading has a maximum in range of 1.6–2.2.

Keywords: Education, Leading, Qualimetrics, Readability, Reading speed, Text.

Introduction

In recent years, it is observed a decrease in demand for printed media and so in electronic book readers and in whole electronic media. Serious, but technically avoidable lack of electronic publications is a lower resolution of text on computer or book reader screen in comparison with its printing reproduction. The consequence is a reduction in the readability of electronic text, large burden on the user's eyes than when reading printed material. These problems are especially sharp in educational process because of the influence of readability on the text perception and so on the quality of education in the end. The perception of the text presented in digital form depends on the characteristics of the screen display. The perception of the printed text depends on some spatial characteristics of the page and font used. Therefore a necessity to adjust the typesetting of print and electronic media rules in order to improve readability appears.

The aim of the research was to develop the methodology for assessing the readability in education and to investigate the perception of the text-based information from one of the main spatial characteristics of a type page area — leading. The research was conducted by direct interview and questionnaire. It involved 100 student age respondents from the Institute of Professional Education and Information Technologies of the Bashkir State Pedagogical University and Military department of Ufa State Aviation Technical University.

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1. Readability investigations

1.1. Readability and main features of text and font

The analysis of researches in the field of readability shows insufficient scrutiny of issues related to finding the best representation of the spatial characteristics of textual information. Thus, the research of perception of the spatial characteristics of the type page area on the example of leading seems to be much actual. Readability is a property of the text material which characterizes the ease of perception of it by a man. The main readability criteria of the specific typographic sample is reading speed of this sample. The measure of readability is the time in which one can read the text.

Also readability is one of the major advantages of a good ("readable") font. The readability of fonts is determined by speed, i.e. quickness of perception, and the readability of individual characters, and the text as a whole, as well as the accuracy of comprehension without undue stress and fatigue. When reading due to a readable font the eye pressure doesn't increase (Glushkova, 1987), the attention concentrates mainly on the information itself, rather than the means of transmission. So it is advisable to choose a set of quality and legible fonts to text typing on the prepress stage, as well as the correct choice of other text typing parameters and layout. Font readability is influenced by:

1. Form of font characters: a picture or font type, size, sign proportion ratio of the width to its height, rhythm shape, weight, color;
2. Typographic composition: the string length or font field width, space around the line or font field, leading, the form of lines, rhythm of lines and text composition, color solution;
3. Font definition: the ratio of the font color to the background color, texture, quality of performance;
4. Font clarity: recognition of signs, it's differentiation, justified shapes simpleness, represent of the content.

Necessity of obeying the readability requirements caused by psychophysiological characteristics of man, manifested in the process of reading and understanding the text (Smirnov, 2007).

Question of the font size influence on legibility in a coherent text is well studied and confirmed by practice. Most readable font size for the text connected to adult skilled readers is the size of 10 points (Dubina, 2004). Smaller font sizes are read with a lot of stress when placing signs. If the font is too small, the reader is often "lost line": having read to the end of the line, hardly finds the beginning of the next one. With too large font sizes line, by contrast, are shortened, resulting in some of the transitions to the next line. Because of the lower resolution of the PC screen font characters legibility is deteriorates. Therefore, the screen font has to be larger than paper printed.

James Felichi (2004) gives several ways to determine the optimal length of the line:

1. The optimal length is equal to 1.5-2 lengths of alphabet line length. Alphabet line length - a line that contains all lowercase alphabetic characters.
2. Optimal length line should contain 9.10 words on average consist of five letters each.
3. The minimum length of the line is 27 characters, the optimum length - 40 characters, and the maximum - 70.

Leading factor is calculated by dividing the line spacing to the font size (in points). Line spacing - the distance between the baselines of the text. Baseline – an imaginary line along the bottom edge of the main element of character. In Fig. 1 shows the basic lines of text, and the distance between them.

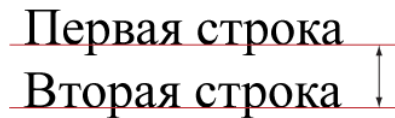


Fig. 1. Line spacing

1.2. Readability researches

History of readability research dates back more than 100 years. Cattell (1885) attempted to assess the readability by tachystoscopic measuring of the recognizability threshold. Tachystoscopia is allow to determine the minimum time required for recognition of characters, words, groups of words. Cattell found that sight when man reading is not moving monotonically in line, but jumps with short intervals, covering just eight or nine characters. With each fixation eye takes three or four letters. But in fact, sight motion when reading text is even more irregular, since fluency, knowledge of the meaning and syntactic structure of the text allow to not peer into individual letters.

Based on these studies, Cattell placed lowercase letters of the alphabet in their degree of recognizability in sequence. Sanford (1987) had repeated studies, but using a different font, he received another letter order. This suggests that the fonts do differ in their recognizability.

A report by Pyke (1926) summarized the results of studies of readability. Report noted the fragmentation of research and the lack of a systematic approach to the research of text recognition and readability. Pyke himself singled out 15 readability criteria:

1. reading speed;
2. recognizability threshold distance;
3. volume of perception;
4. threshold of focus;
5. fatigue;
6. number of fixations;
7. number of returns;
8. eye movement regularity;
9. rhythm of reading;
10. readability factor (sum of letters area, divided by the total area of perceived letters);
11. specific readability (the multiplication of the readability on the printed area of letters);
12. height of letters;

13. height of signs;
14. subjective judgments of readers;
15. aesthetic judgments of readers.

Based on the analysis, Pyke concluded that readability is not to be confused with the letters and words discernibility, it should be studied separately from the discernibility. He proposed to assess the readability by comparing the text read with that is understood when read. Thus, it was concluded that the readability should be judged not by the disparate characters, but on the examples that contain meaningful text. Then there was the question of the speed of reading. The reading speed means the amount of time which takes to read a particular text. First reading speed as a readability criteria was proposed by Weber in 1881, but actually became considered after the Pyke's report.

In 1920th U.S. researchers (Tinker, Paterson, 1929) got the following results:

1. Text typed with capital letters, read by 11.8% slower than typed with upper and lower letters;
2. Italics not slow reading speed, if used short;
3. Bold no less readable than light, and sans-serif fonts are not inferior to the readability of serif fonts.
4. Fonts from a size 8 to 13 are equally readable with a size optimal for a given length of the string.

Black text on yellow paper, green or blue text on white paper, read a bit slower than the black text on white paper. White on black read about 10% slower than black on white.

In the USSR the research of a comparative readability of fonts was conducted in 30-40th of XX century in OGIZ research institute, in 50-60th of XX century in the department of movable types of Polygraphmash institute. Artemov (1933) proposed to distinguish the concept of visibility and readability of font, as readability significantly affected by the certain physiological reading characteristics of the reader, while the visibility of the font depends on the quality of type faces and features of the person's vision. In 1973, in the Moscow Polygraphic Institute Geshev (1973) and Kolosov where investigated the effect of font size, string format, inter-word spacing and leading on the text readability. It was concluded that the optimal value of inter-word space is constant and independent of other factors. The optimal value of the font size and format of the string is the smaller, when the font is more readable (Tokar, Zilbergleit, Petrova, 2004).

Wide paragraph gives the best results in reading speed, but eyes get tired faster. The fact is that after reading one line, the eye must be tuned to the next line. And in a long line, the eye has to overcome a greater distance, making it harder to find the following line (Vakorin, 2005). Also since the late 19th century, there have been many studies on the optimal line length for printed publications made, but the ideal solution has not appeared.

Readability is also associated with the color. Text in black and white is hard to read on a computer screen. The human eye is much easier to perceive colored letters on a colored background. (Teksheva, 2008) When reading from the computer screen during the stable performance does not occur, underscoring the increasing complexity of visual work when reading from the monitor. Considering not only the speed of reading, but also the number of errors, the optimal screen colors will be slightly different. Preference should be given to the blue signs on a yellow background, the yellow signs on a blue and red signs on the green. In addition to the best color combinations, is set the screen brightness level (from 35 to 120 cd/m²), and the total uneven brightness on the screen should not exceed 40%.

The most objective and functional method of readability researching is considered to be the method of reading speed measuring. It is to determine the time of reading a text of a given size (Tokar, 2011). And this method is used in this work. The new approach was to develop (by special software) the artificial dissociated text for use in the assessments. It was made to eliminate the cognitive component affecting to the reading speed. In this research, the text reading speed was adopted as a main criterion of specific printing solution in the hard copy version readability. When considering the various leading readability some contradictions that have led to finding the optimal ratio spacing for printed and electronic texts have been found.

2. Sampling and procedure

2.1. Sampling

As respondents 100 students (age 20-22) were selected. The experiment was conducted in daylight in the classroom of the Bashkir State Pedagogical University, Ufa, Republic of Bashkortostan, Russia.

As a stimulus material 13 dissociated texts of 1000 characters were generated. Texts were placed to individual pages with different leading values and under identical set of other parameters: font Times New Roman (known as knowingly readable), font size 14 points, margins 2 cm, indentation 1.25 cm, justification for the width of the page, text color is black, paper color is white. Selected leadings (according to MS Word 2007): 0.8, 1.0, 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7, 1.8, 1.9, 2.0, 2.2. Stimulus material was printed on writing paper A4, 80 g/m² by electrostatic laser printer Konica Minolta bizhub C220. And so it was generated as set of PDF files to preview on the laptop. The average line length was 164.84 mm and 73 characters (include spaces). As addition line spacings and leadings on all printed pages were measured by microscope with a metric ruler, and metric leading factors were calculated. The following values (accordingly leading values given above) have been obtained (see Table 1).

In the first phase of the experiment the time of reading the texts with various leadings has been measured, and the perception of the paper printed text patterns has been evaluated. Respondents were asked to read the series of 13 variants of stimulus material with a comfortable for themselves speed, without gaps or repetitions. Reading time of each page was controlled with stopwatch.

Table 1. Values of line spacings and leadings on the printed texts

Leading (by MS Word)	0.8	1.0	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2.0	2.2
Line spacing, mm	4.56	5.66	6.21	6.80	7.35	7.95	8.54	9.04	9.64	10.18	10.78	11.33	12.50
Font size, mm	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50
Calculated leading factor	1.01	1.26	1.38	1.51	1.63	1.77	1.90	2.01	2.14	2.26	2.40	2.52	2.78

For the second phase of the experiment nine texts of the stimulus material created in the first phase were selected. Leadings were the following: 1.0, 1.2, 1.4, 1.5, 1.6, 1.7, 1.8, 1.9, 2.0. At this stage, the values of text

samples reading speeds from the screen of laptop Asus A52F (15.6", ratio 16:9, resolution HD (1366x768 pix), LED backlight, color profile AdobeRGB1998) were obtained. Respondents were asked to alternately read 9 pages of the stimulus material. Reading produced in Adobe Acrobat 9 Pro at full screen, fit page. Reading time was controlled with a stopwatch.

2.2. Data preparation and processing

For the preparation for processing of data obtained during the experiment Microsoft Access 2007 was used. The file structuring the data obtained was created in the program. Values of time spent on reading the text of 1 000 characters were transferred to the values of reading speed in characters per second. For the further work with the data an arithmetic average of reading speed for each leading, standard deviations, standard errors, confidence intervals $p = 0.95$ were calculated.

3. Results and discussion

On the basis of a structured database the plots of dependence of reading speed from the value of leading were drawn for printed and electronic texts (see Fig. 2) as well as the corridors of confidence intervals $p = 0.95$ for both curves. For clarity, each of the plots was approximated with polynomial curve. Plot in Fig. 2 shows that the maximum paper printed text reading speed is observed with leading 1.7. Reading speed at this point - 21.0 char./sec. Thus, it is shown that the dependence of the text reading speed from the leading has a maximum. In particular, the observed maximum lies in the range 1.6-2.2. On the plot of dependence of electronic text reading speed from the value of leading the maximum reading speed is 17.7 char./sec. It achieved with leading 1.9. However, it's found no statistically significant effect of leading on the electronic text reading speed (determined by visual comparison of plots).

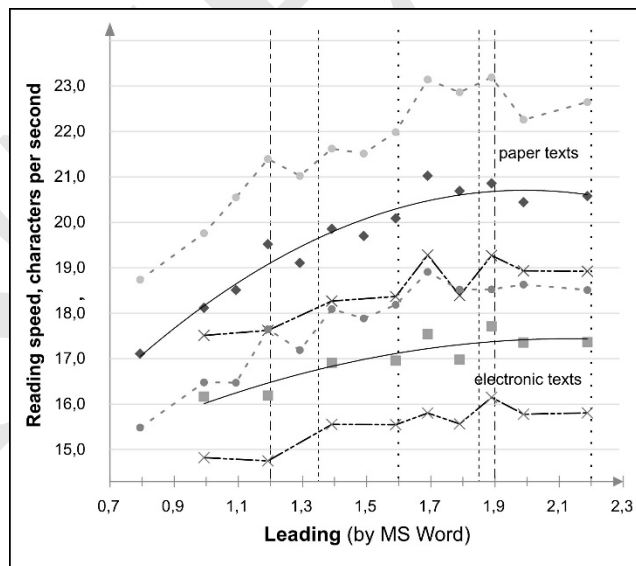


Fig. 2. Dependence of printed and electronic texts reading speed from the value of leading, corridors of confidence intervals $p = 0.95$

4. Conclusion

When considering the question of readability with various leadings some contradictions have been found. It has led to the need to find the optimal leading for printed and electronic texts. It was also noted that in the national researches of readability the factor of subjective perception not taken into account or had no effect on the final conclusions. Therefore, we attempted to identify the laws relating the perception of the text and its spatial characteristics. The analysis of the literature led us to the formulation of hypotheses: the dependence of reading speed from text leading has a maximum. To test the hypotheses two experiments with 100 respondents were designed and conducted. Then developed a method of processing the data, allowing to obtain the valid conclusions in terms of research objectives.

Processing reading speed data using t-test showed that the dependence of printed text reading speed from the leading has a maximum. In particular, the observed maximum located in the interval (1.6;2.2). Statistically significant effect of the leading on the electronic text reading speed was not found.

Results of research can be used to optimize the texts makeup in order to facilitate its perception, which will improve the quality of information assimilation, especially in field of education. Because the research was based on Cyrillic texts it's much of interest to get the same data about Latin ones.

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4th International Conference on New Horizons in Education

The ludic and powerful Mayan mathematics for teaching

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Abstract

Apparently, the Mayas discovered and used the abstraction of zero many centuries before any other culture, about 400 years before our era. Some of the remarkable cultural achievements of the Maya people show the need for a mathematical tool, powerful, and accurate. In this work, we describe the numbering system that was positional, similar to that currently used, but using base 20, and with only three signs: the point, the bar, and the zero. The latter was represented in different ways. The most common was the snail shell. Here we show, how with these three signs, all operations were performed. We exhibit the advantages of using dots, bars, and snail shells, to perform arithmetic operations. We show how to use the Mayan system in base 10, for a fast understanding. We display on this basis, the operations of addition, subtraction, multiplication, division, and square root without using tables. It is an elegant, dynamic, ludic, and intuitive process. We also show some initial results obtained from the application of this method for teaching mathematics in elementary schools in Yucatán, México.

Mayan mathematics; base 20; base10.

1. Introduction

The Mayas wrote their numbers vertically and using dots, bars and seashells. They used base 20. In figure 1, we show the first 21 Mayan numerals. Notice the blocks of powers of 20 in the vertical direction and notice that 5 points are equivalent to a bar. In figure 2, we show the representation of the number 4002 using the Mayan system. The methodology that, more likely, used the Maya to conduct their operations included the following rules [Morley, 1968;Thompson, 1941].

- I. Five points are equivalent to one bar in the same level.
- II. One bar is equivalent to five points in that level.
- III. Four bars in a level are equivalent to one point in the superior immediate level.
- IV. One point in a level is equivalent to four bars in the inferior immediate level.

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Mayan numerals base 20

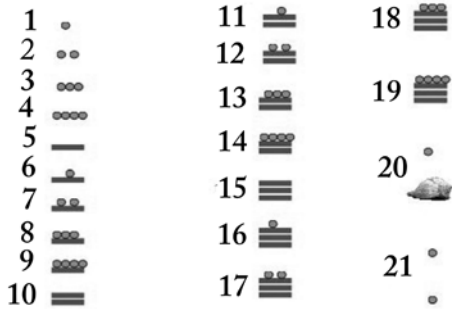


Figure 1

4002 in Mayan numerals base 20

	10X400	20 ²
	0X20	20 ¹
	2X1	20 ⁰

Figure 2

Here, we will use the same methodology to perform arithmetic operations, but we will do it in base 10 for reasons of clarity. We show, in figures 3 and 4, Mayan numerals in base 10. Notice now the blocks of powers of 10 in the vertical direction. To perform arithmetic operations in base 10, we will use the following rules [Magaña, 2003, 2010, 2012], which are the same as the Mayan rules, with a small change only.

- I. Five points are equivalent to one bar in the same level.
- II. One bar is equivalent to five points in that level.
- III. Two bars in a level are equivalent to one point in the superior immediate level.
- IV. One point in a level is equivalent to two bars in the inferior immediate level.

It is not necessary the use of tables of any kind to carry out the arithmetic operations. We can perform the addition, subtraction, multiplication, division and square root. The mathematical proofs that support this methodology are suggested by Calderón (1966) and given by Magaña (1990).

Mayan numerals base 10

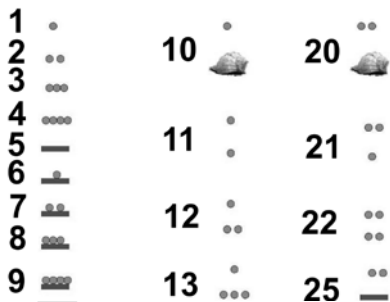


Figure 3

4002 in Mayan numerals base 10

	4X1000	10 ³
	0X100	10 ²
	0X10	10 ¹
	2X1	10 ⁰

Figure 4

2. Addition

We make the operation $161 + 671$, as we indicate in figure 5. We make the addition in figure 6, grouping points and bars on each level and transforming bars into points, as shown figure 7. For every two bars, we put a point in the superior immediate level, like in figures 7, 8 and 9. We show the result in figure 9, and is 832. For adding several numbers, the procedure is the same. The addition of many numbers can be done very quickly.



Figure 5

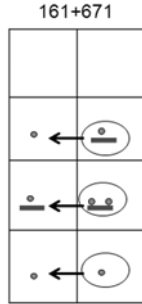


Figure 6



Figure 7



Figure 8

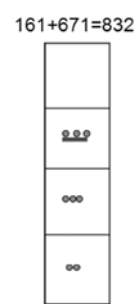


Figure 9

3. Subtraction

The rule for the subtraction is that one point annihilates one point, and one bar annihilates one bar. We will perform the subtraction $752-644$. Notice that in figure 10, the number 752 is in the column on the left, and the number 644 is on the right. We work on the minuend without altering the subtrahend. We proceed along for each level, starting from the lowest one. In figures 10 to 16, we describe the subtraction procedure. In figure 12, we change one bar by five dots. Then, one dot goes one level down, becoming two bars, as shown in figure 13. Afterwards, we convert one bar into five points again, as we show in figure 14. Then, we culminate the subtraction as we show in figures 15 and 16. Notice that we can make the test of the subtraction just by summing the final numbers on the left column, and in the column on the right in figure 16. This means $108+644=752$.



Figure 10

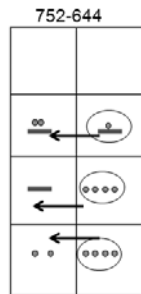


Figure 11

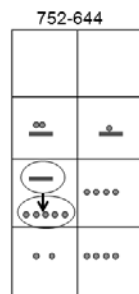


Figure 12

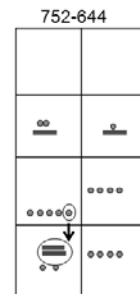


Figure 13

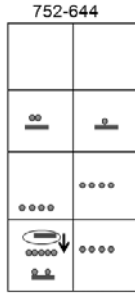


Figure 14

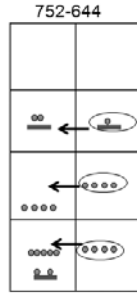


Figure 15



Figure 16

4. Multiplication

We do not need tables to perform a multiplication. We show this in the following example. Let us make the product 312×135 . We put the factors outside the board; one (312), vertically and the other horizontally, like we show in figure 18. Then, we reproduce in each square, the figure that we have to the left by outside the board, so many times, as the number of the superior part indicates. Clearly, we can perform the reciprocal operation too. We do the easier of these two possibilities. We put a group of three dots, or thrice a dot in the first square of the left column. In this way, we solve the squares of the initial column on the left, as we show in figure 19. We solve the squares of the following columns in a similar fashion, as we show in figures 20 and 21. We have almost finished the multiplication.

Then, we start the final part to obtain the product. We group along the main diagonal, as we show on the figure 22. Each transversal diagonal corresponds to a power of 10. Afterwards, we use the rules we have given above. Each group of five dots is transformed into a bar, and every two bars become a dot in the superior immediate level, leaving a zero (this is a seashell) in its place. After doing this, we read the result directly along the main diagonal. The square of the right inferior corner corresponds to the units. We show the sequence in figures 23 to 25. Notice that in the figure 26 we have left a seashell in the square corresponding to the units. Now we read in the figure 25 the result: 42120.

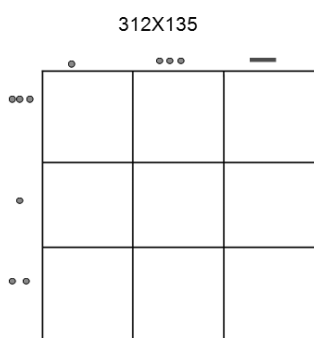


Figure 17

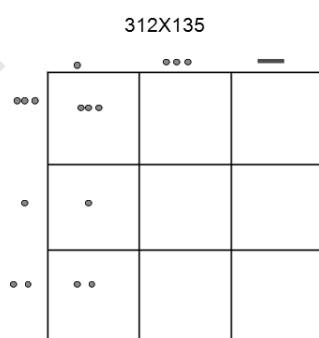


Figure 18

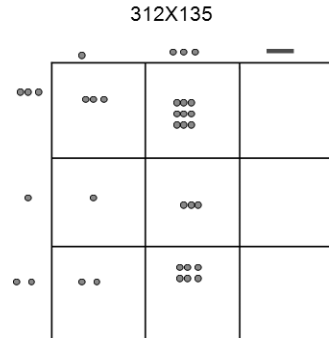


Figure 19

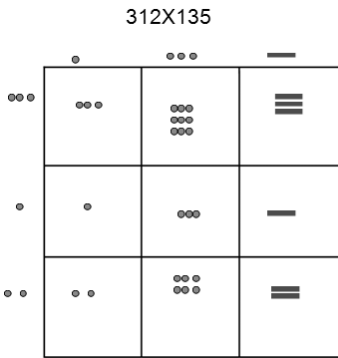


Figure 20

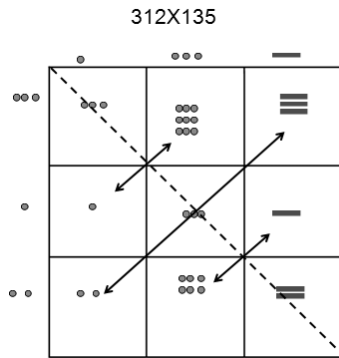


Figure 21



Figure 22

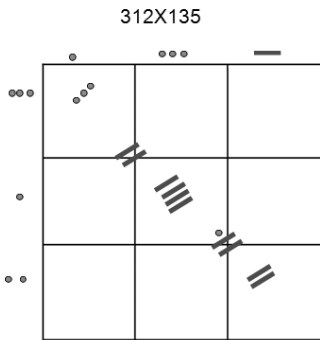


Figure 23

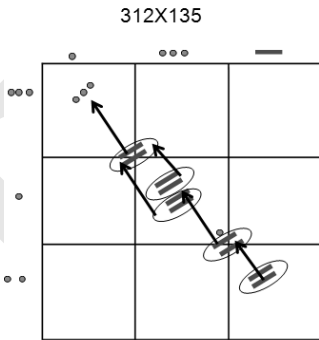


Figure 24

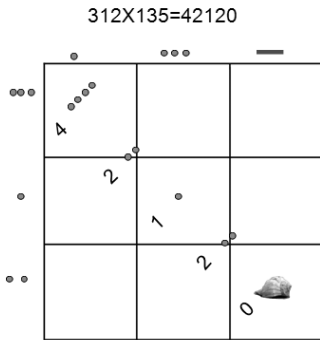


Figure 25

4.1 Non square matrix products

Now let us make the product of two numbers, which does not lead to a square matrix. We perform the product of 12 times 251. We show the sequence in figures 27 to 35. The dashed line indicates the main diagonal. We group along this diagonal, as we show in the figure 29. Then, we transform each group of five dots into a bar, and

every two bars become a dot in the superior immediate level, leaving a zero in its place. The result is in the figure 32, along the main diagonal: $12X251=3012$.

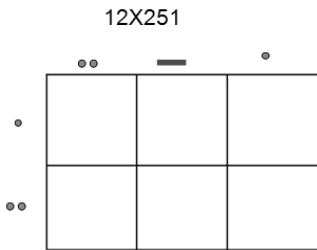


Figure 26

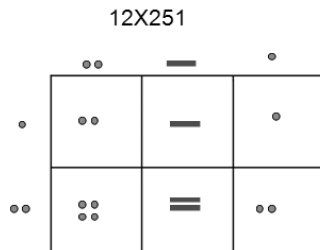


Figure 27

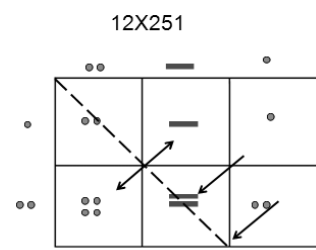


Figure 28

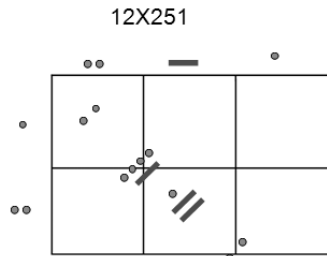


Figure 29

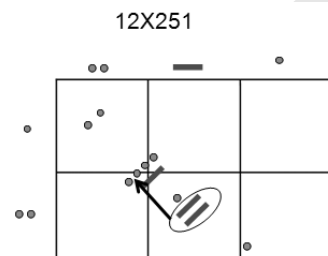


Figure 30

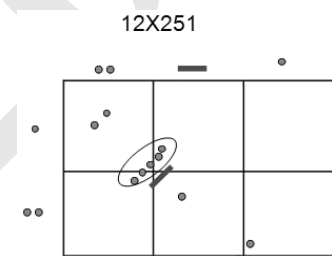


Figure 31

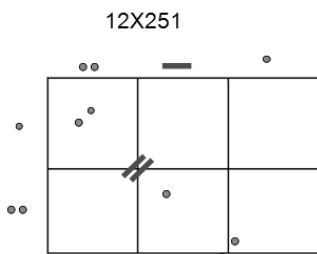


Figure 32

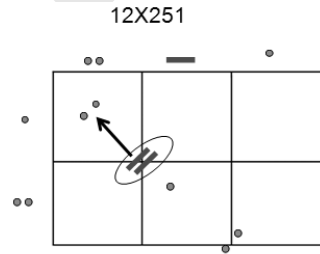


Figure 33

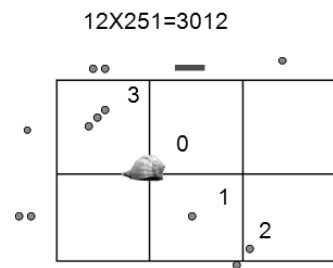
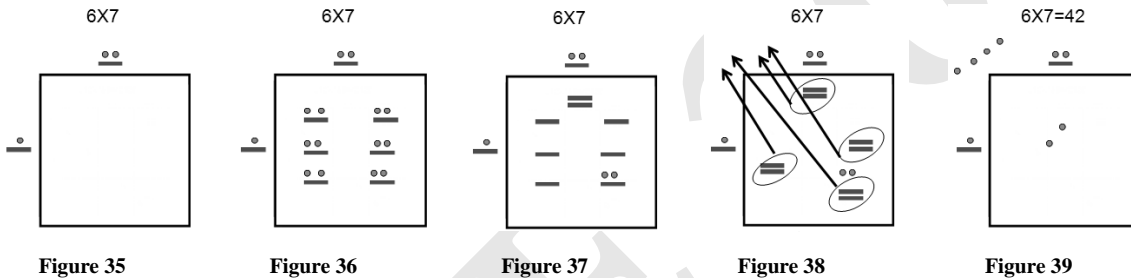


Figure 34

4.2 Constructing the multiplication tables

Let us now consider the product of two digits. We show how to obtain the product of six times seven. This is a typical case when students memorize without understanding the meaning of what they are doing. With this method, it is not necessary to memorize the product. They can reproduce it as many times as they need. However, what is more likely is that at large, they will memorize the result after going through the procedure enough number of times. For this case, our board is made of only one square. We place the factors outside of our board, as we show in figure 35. In the only square of our board, we reproduce six times one bar and two dots, as we show in the figure 36.

Then, we exchange every five dots with one bar. This means that we have to put two additional bars; see the figure 37. Afterwards, we substitute every pair of bars for one dot on the immediate superior level. We have four pairs of bars, which we show encircled in the figure 38. These four pairs correspond to four dots in the immediate superior level; see the figure 30. Finally, we can read the result: 42, in the figure 39.



5. Division

This is the inverse operation of the multiplication, and thus we will solve it. The dividend is conceived like the product of two numbers. One of them is the divisor and the other, unknown, is the quotient. Therefore, the dividend is placed on the main diagonal of the board. We use our knowledge on the multiplication to go backwards, in order to find the missing factor, which is the quotient.

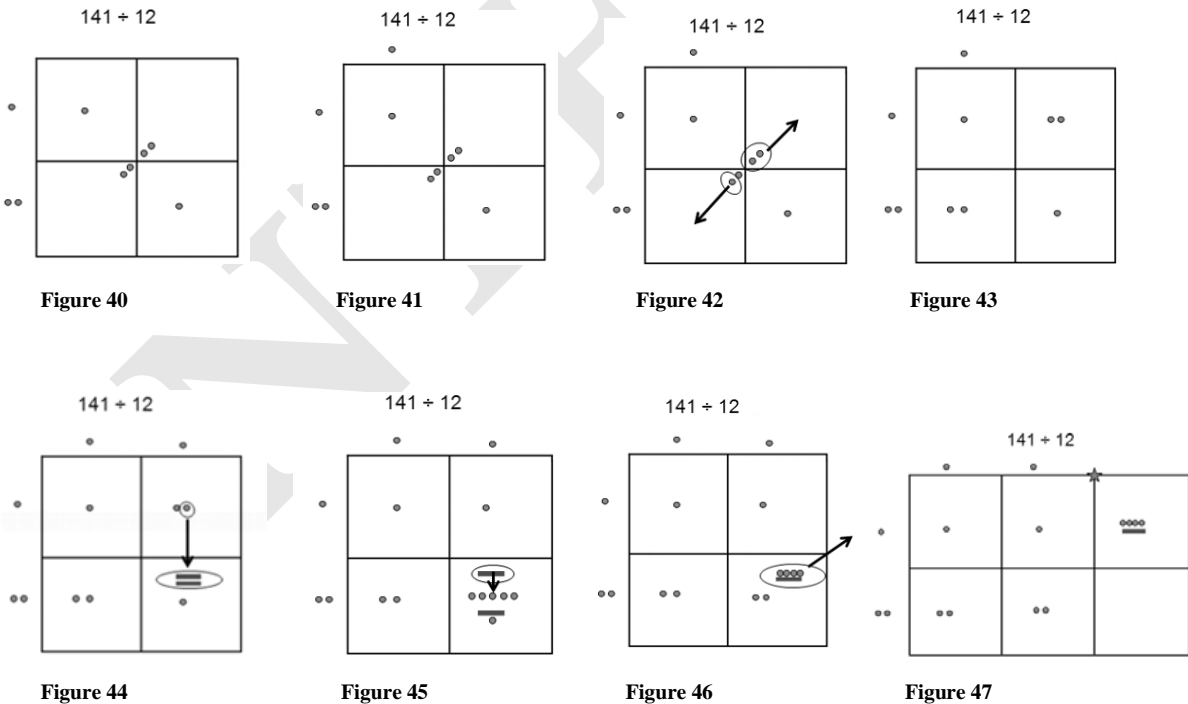
Let us consider $141 \div 12$, see figure 40. We will put the divisor in a vertical form and by outside of the board. The quotient will be in a horizontal form and by the exterior of the board too. These locations can be exchanged with no problem. We begin the division proposing a number to be in the external part, by above of the square of the left corner. This choice is such that, reproducing the first figure external to the left (one dot) as many times as the number that we are looking for, we obtain the dot of the left superior square on the board. Clearly, we are following an inverse way from the multiplication.

We find that we have to put one dot, as we show in the figure 32. With this, we satisfy the multiplication rules for the first square of the initial column. In order to complete the inferior immediate square of the same column, we see that we need two points. We take those two points from the number that is in the diagonal, as we show in figures 41 and 42. In this way, we have completed satisfactorily the first column.

Now, we work with the second column, see figure 43. We must find the following number of the quotient that goes in the external part of the board by above of the second column. If we use a number two (i. e. two dots) we complete the first square of this column, but we exceed what we have in the inferior square of this column. In this way, we try a solution by using one dot, as we show in the figure 44. In the first square of the second column, one dot is in excess, thus we lower it to the inferior immediate square like two bars. We show this in figure 44. Then, we convert one of bars into five points, as we show in figure 45. We take the required two dots to leave in that square, and we displace the rest (one bar and four dots) to the first square of the third column. Clearly, $141 \div 12$ results in 11 plus a residue of 9. We show this in figures 46 and 47, and we use a star to begin with decimal fractions.

Afterwards, we work with the third column; see figures 47, and 48. We must find the following number of the quotient that goes in the external part of the board by above of the third column. We try with a bar and two dots, as we show in the figure 48. A pair of dots is in excess in the first square on the third column. We lower the two dots to the immediate inferior level, as four bars; see figure 48. Then, we convert one bar into five dots. We leave the required two bars and four dots in that square; see figures 49 and 50. We displace the remaining bar and dot, to the upper square of the fourth column; see figures 50 and 51.

Then, we work with the fourth column; see figures 51, and 52. We must find the following number of the quotient that goes in the external part of the board by above of the fourth column. We try with a bar, as we show in the figure 52. A dot is in excess in the upper square of the fourth column, as we show in the figure 52. We lower that dot, as two bars, to the immediate inferior level. See figures 52 and 53. In the inferior square of the fourth column, we must have two bars, and we have exactly that. Thus the division has concluded, and $141 \div 12 = 11.75$, as we show in the figure 53.



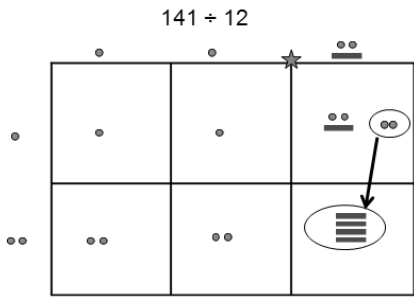


Figure 48

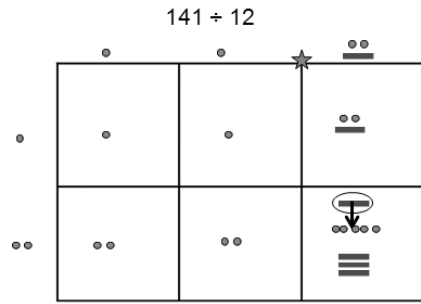


Figure 49

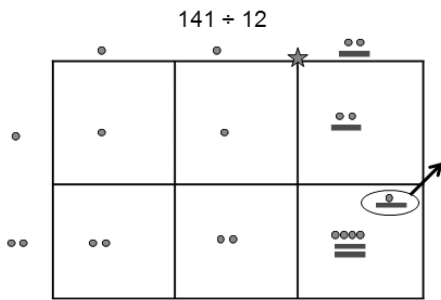


Figure 50

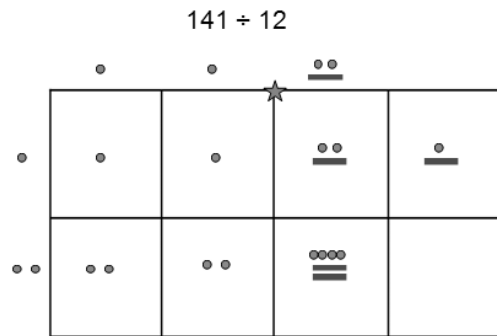


Figure 51

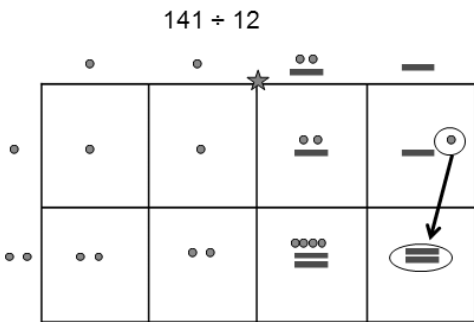


Figure 52

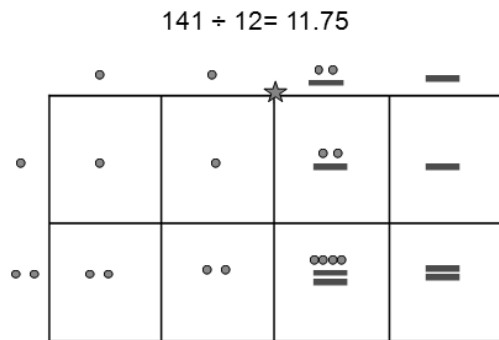


Figure 53

6. Square root

We solve the square root in the same manner that we solve the division. The radicand is the dividend. Of course that we do not know the divisor or the quotient, but we know that they are the same, and we use this fact to find the solution.

Let us find the square root of 225. As we are considering it as a division, we place the radicand along the main diagonal of the board; see the figure 54. We proceed as we did in the division, but knowing that the quotient must be equal to the divisor. We have two dots within the square of the left corner of the board. We try one dot like the first digit of the divisor and of the quotient, as we show in the figure 55. With this trial, one dot is in excess in the upper square belonging to the column on the left. We lower this dot to the immediate inferior level, along the main diagonal, as two bars. See figures 55 and 56. After finding the solution for the first square, we follow an additional rule for the square root. We have to distribute symmetrically as possible, the number of the radicand located in the immediate inferior level. We distribute among the squares located on the diagonal that corresponds to the same power of 10. We show this distribution in figures 57 and 58.

Now we proceed to find the following number of the solution. We may try a bar in the external superior part of the second column, and simultaneously, in the external part of the second row on the board, see figure 59. We see that with this trial, we require having only one bar in the first square of the second column, and we have one dot in excess. We lower that dot to the immediate inferior level, as two bars. We also require having only one bar on the first square of the second row. Again, we have one dot in excess. We lower it to the immediate inferior level too. See the figure 60. Finally, we need to solve the second square of the second column. In this square, we already have five bars. These five bars correspond to the number of bars that we need, according to our trial of a bar. In this manner, the square root is solved, see figure 61. The result is exact and is 15.

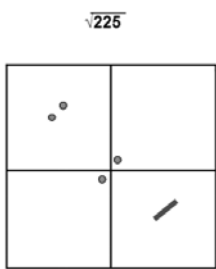


Figure 54

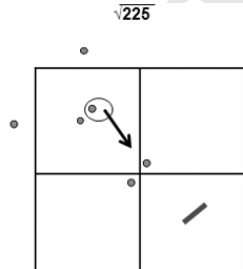


Figure 55

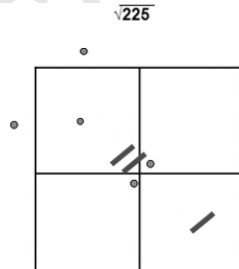


Figure 56

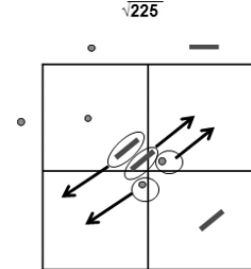


Figure 57

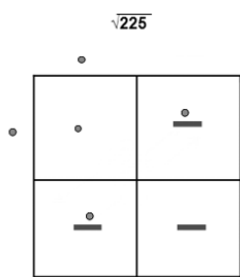


Figure 58

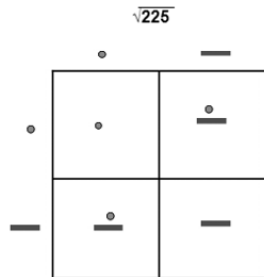


Figure 59

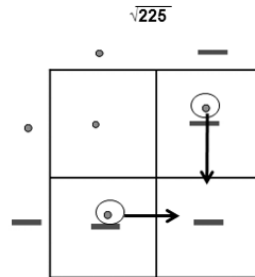


Figure 60

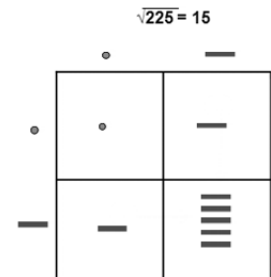


Figure 61

7. Preliminary results from the application of this method

This method has been used as an auxiliary tool for teaching mathematics in some of the elementary schools in Yucatán, Mexico. These schools are located in the rural zones.

It is convenient to mention that the resulting algorithms from this method, when using Arabic notation, are simpler than the ones which are currently taught [Magaña, 2012]. However, it is necessary to master Mayan mathematics previously. Besides,

The students at those schools are traditionally very weak in mathematics learning. In 2010, the Yucatan Public Education Secretary asked me to start a training pilot program on Mayan mathematics. This was for teachers of the elementary school level. Then, since 2011, those teachers taught Mayan mathematics during half an hour at the end of the day, after the regular program was satisfied. The ludic nature of Mayan mathematics was very useful to attract children's attention. The national tests on mathematics for the elementary schools in 2011 and 2012 were very satisfactory for those children. It is convenient to mention that the elementary school in Peto in a distant rural zone in Yucatan was the second place in the last two years. This suggests the convenience of changing the traditional way of teaching mathematics to this manner.

As a final comment, we should mention that the nature of Mayan mathematics induces to mathematical reasoning. It is not necessary at all, to memorize tables of any kind. This occurs with each of the arithmetic operations. With Mayan mathematics, children understand the concept behind each arithmetic operation.

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The MOOCs business model

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Abstract

A new business model for MOOCs is described in this paper. This model allows for learning interaction between students and teachers on demand using a system that enables the services of the participating teachers to be financed. By integrating three different learning models, the learning process of the students can be enriched with certain elements and the services provided by teachers can be funded through a specific payment system.

Keywords: Massive Open Online Courses (MOOCs); Model; Social Media; e-Learning

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1. Introduction

MOOCs are a hot and current topic within the field of e-learning. Many courses are available on all possible themes and topics– most of them for free and organised by each institution as marketing tools and channels. Only a small proportion of these **Massive Open Online Courses** are financed by examination and diploma activities.

This paper presents the innovative idea for a MOOC business model which funds the teachers involved in these courses. Based on three social media models for e-collaboration developed by the Swiss Special Interest Group for E-Collaboration (SIG eCo), the present business model demonstrates how social media can be used and implemented to establish a more interactive approach in the field of MOOCs.

To this end, the paper starts by looking back at the history of the models by briefly introducing these three social media models as basis for the MOOC business model. In section 3, MOOCs are embedded in their current setting of e-learning before the subsequent section 4 unfolds the core theme of this paper by combining these social media models to create an innovative and new *business* model for MOOCs. The paper concludes with a short summary of its important results and provides an outlook on any remaining questions and future steps.

2. History

A large part of learning happens up there – in the virtual cloud. Learners make use of the wide range of technology-based multi-media activities for managing and reflecting on their learning process, for creating (learning) content and/or for collaborating and communicating with others. Social media in particular with their various functionalities of networking, sharing, blogging, chatting etc. have a considerable impact on how learning experiences are designed as a collaborative activity these days.

Thus since Twitter, Skype, Dropbox, wikis etc. have become a hot and challenging topic in the e-learning field, the Swiss Special Interest Group E-Collaboration (SIG eCo) started to develop three conceptual models in 2012 which describe, analyse and promote hands-on learning with, in and through social media.

Later on, these models were developed further and presented at a Learning Café to the Swiss Academic E-Learning Community eduhub (www.eduhub.ch) at the eduhub days in January 2013.

This section will present a brief overview of the three models and their application in higher education settings since they form the basis for the MOOC business model which will be introduced later in this paper. Starting with a functional definition, social media are thereby perceived as digital applications which allow and promote social interactions and social exchange among their users (Hansen et al. 2011).

2.1. The Social Student Model

The social student model refers to the fact that the students' learning process is never fully accessible to the teacher as shown in figure 1.

In other words: students design their learning experiences in an individual and partially informal way by using social media for working with others on shared tasks. Instant messaging, for example, facilitates collaboration among students by enabling prompt and immediate exchange on specific topics. The advantage for the student here lies in instant communication: instead of spending time waiting for the teacher's answer via email or in the next lesson, the learner receives the desired information more easily and quickly by asking his/her schoolmates via Skype, Facebook or other social media.

The model points out this informal side of learning where teachers do not have (and do not need to have) full insight. Thus the model aims to raise awareness of the fact that the teacher's role is limited to task-related support within the learning process and that the organisation of this learning process on the other hand (partially) depends on the responsibility of students themselves. Social media offer needs-oriented and flexible channels for designing these learning experiences in a collaborative way.

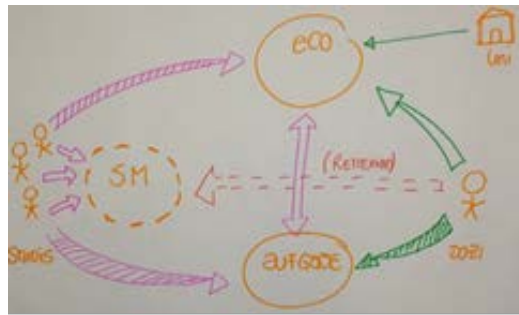


Fig. 1. The Social Student Model

Legend: Studis=Students, SM=Social Media, Aufgabe=Task, eCo=eCollaboration, Dozi=Teacher, Reflexion=Reflection

2.2. The E-Helpers Model

Following the social student model and its claim that social media support the informal aspects of the learning process by enabling social exchange among students, the e-helpers model introduces the idea of an open helping community for learners, based on the two aspects of *task* and *time*.

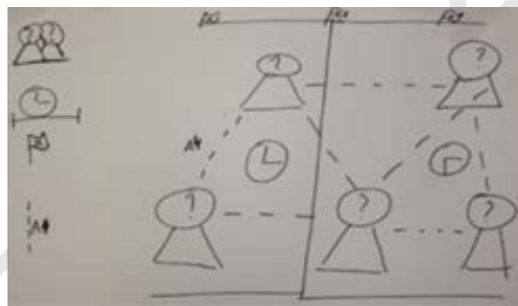


Fig. 2. E-Helpers Model

The model responds to the question of where learners can find out certain information at a certain time for solving a certain task by making use of shared knowledge and experience.

Assuming that others have the same or similar problems to solve, users come together and build a temporary online community based on their specific needs. When the learners have found out the information they were looking for, they leave this temporary community again.

What distinguishes the e-helpers community from other social media channels is its focus on the users' current needs and not on the social relationship between them. Its objective is to generate fast and prompt information by users *for* users who are not necessarily emotionally linked to each other. Thus, while the members of this community change continuously, the information that is collected on the platform is retained over time for future use.

2.3. The Antibody Model

The last of these three social media models introduced in this section presents the idea of using social media to boost innovation through collaboration.

In higher education settings, collaboration normally takes place among students who know each other or who are linked with each other through a topic, personal skills or affinity. On the contrary, this model promotes the idea of collaborating with unexpected people based on the assumption that unknown people, people from other fields and people with other views and interests etc. offer deeper and different insight into the learner's perspectives. Social media create a valuable environment for this kind of unexpected collaboration since they allow learners to find people, knowledge and experiences which extend beyond their own background.



Fig. 3. The Antibody Model

To this end, the model creates the figure of the antibody – a kind of devil which engages the learner to overthink his/her ideas and views by asking questions, criticising or by having complementary needs or objectives. Regardless of whether this other person doesn't understand, doesn't like or doesn't agree with the learner's view, this "devilish" feedback takes the learner out of his/her comfort zone and thus creates room for new, innovative, unexpected and unusual ideas as added value within the personal learning process.

The following section briefly presents MOOCs as a recent trend in the e-learning field, before the MOOCs business model is introduced in section 4.

3. MOOCs

Massive Open Online Courses (MOOCs) have been one of the most recent developments in the field of online learning. As the name implies, MOOCs are online courses that are designed to offer learning content to a large group of people. Gaebel (2013) characterised a MOOC as a free, credit-less online course where people can participate without entry requirements and without limits on the amount of registrations. For example, the course "Introduction of Artificial Intelligence" by Dr. Sebastian Thrun received 150,000 registrations and Stanford University started three online courses that each amassed at least 100,000 applications (Pappano, 2012). There are currently many other Universities which offer MOOCs and several platforms/companies have distinguished themselves as leaders in this area, such as edX, Coursera, Udemy MITx and Udacity.

Two kinds of MOOCs can be distinguished: the cMOOC model and the xMOOC model (Siemens, 2012). According to Siemens, the cMOOC Model "emphasizes creation, creativity, autonomy and social networking learning" and a "focus on knowledge creation and generation". On the other hand, the xMOOC model is based on

“a traditional learning approach through video presentations and short quizzes and testing” and “focuses on knowledge duplication”.

Even though MOOCs are a recent development, several benefits can be noted. According to De Waard (2012), MOOCs are time and cost efficient. There are free tools available for building these courses, languages can be chosen and changed freely, tools can be tailored to the preferences of the participants and courses can be set up quickly. Secondly, another benefit is openness. Signing up does not usually require any specific certification. The only pre-requisites for most Massive Open Online Courses are access to an Internet connection and a device to access the course. The scale and nature of the course make time zones irrelevant. Thirdly, there are several benefits for student learning. MOOCs can easily be added to one’s personal learning environment. The setting is usually more informal and therefore might be more productive for some students. Everybody can sign up for a course but this process will force students to evaluate their own learning processes. A further advantage of MOOCs is cross-disciplinarity and promotion of exchange between the different fields of expertise.

However, MOOCs lack ways of promoting social interactions as well as funding teachers’ activities. The MOOCs business model is aimed at filling in these gaps, as described in the following section.

4. The MOOCs Business Model

4.1. Promoting social interaction in MOOCs

MOOCs are trendy; there are a lot of courses available where everybody enrolls in a MOOC course for free. Currently, MOOCs are mainly financed and treated as marketing tools. Only a small proportion can be financed by examination and diploma activities.

MOOCs have become very popular because publication and participation are easy to manage. Students do not have to pay for a MOOC which is an advantage. However, they cannot really interact with teachers. There is currently no way how teachers could earn money for teaching and collaboration services within a MOOC.

By integrating the aforementioned learning models into a MOOC, the learning process of students as well as the interaction between teachers and students can be improved and a payment system can be created. By combining the learning models, an interesting business model for MOOCs is set up which finances the teachers involved in the courses and lets the students interact with them.

Before those learning models can be integrated, every model shall be briefly summarised in terms of its core message:

- **Model E-Helpers:** A group of learners come together for a certain period of time to work on a specific task. The group members can be anonymous as their personalities are not of interest. When the task has been resolved, the group will disintegrate. The group is mainly task and not member related.
- **Model Social Student:** A group of learners learn on their own via social media interactions; their contact with teachers is only task-related via e-collaboration. Teachers do not have (and do not need to have) insight into the learning process of their students as their contact is only a task-related one.
- **Model Antibody:** The antibody stands for the opposite of what you normally are looking for. In our subject matter, it allows for the creation of a wide learning space and lets students experience and create different views and new perspectives.

- How the MOOCs Business Model works

Figure 4 below shows how the MOOCs business model will work.

Example: Students register for 100\$ to participate in a MOOC (it is possible to allow students to participate without registration just to gain an overview of the course topics first. However, these students cannot participate in the activities described below until they register for the MOOC and pay the fee).

Registered students will learn and work by themselves through the learning material for the MOOC; from time to time, they have to solve exercises. For each exercise, there is a standard solution provided as part of the course but it is the students' task to look for other, non-standard solutions. Here the antibody model comes into play as it promotes innovative and new ways of thinking. For example, in order to find another way to solve a mathematical problem, the student is forced to leave his or her comfort zone of standards.

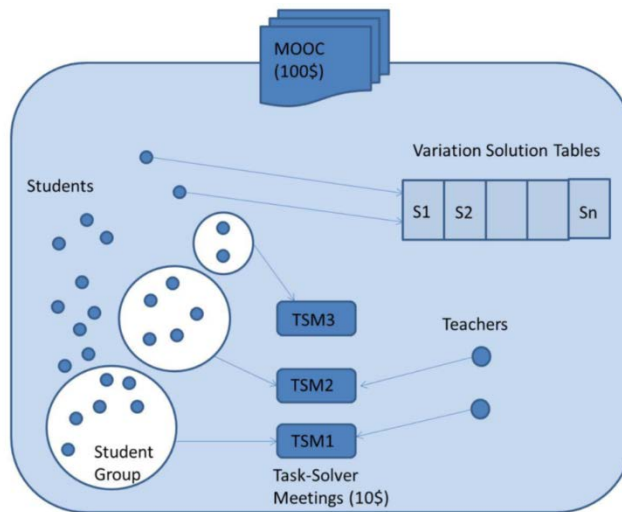


Fig. 4. Operation of the MOOCs Business Model

This is of great benefit for the students' learning because they have to look at the problem from different perspectives and have to work actively within the given subject matter - not just by reading through it. Finally, they have to enter their solution into a Variation Solution Table which is public for all students. The additional solutions must be different from the existing ones already listed in the table.

While trying to find solutions, students experience problems and realise that they need more help in order to understand the subject matter better. To this end, registered students can open up a new Task-Solver Meeting where they describe what problems, issues or questions they want to discuss with a teacher in an online meeting. Alternatively, students can look for existing open calls for a Task-Solver Meeting which fulfils their needs. If there are enough participants for a certain call, a teacher will schedule and hold the meeting. This is where the task/time related e-helpers model which forms the student group comes into play. An active meeting will cost every participant 10\$ for example, so the teacher is paid for his/her job.

As registered students already paid 100\$ at the beginning of the course, each meeting will be paid for using a fraction of this amount. The registration fee allows students to participate in 10 meetings. As the teachers will only be active based on demand for a Task Solver Meeting, the social student model is deployed here.

There are also several options which can be implemented:

- For every additional solution entered into the Variation Solution Table, students can gain virtual money (for example 5\$) that can be used for further Task-Solver Meetings to enhance the chance for having enough participants for a certain meeting.
- Students receive scores for their solutions. The scores will be provided by teachers. If a student reaches 100 scores he/she will receive a course certificate or diploma. The diploma will contain a written statement about the graduation process. As part of the registration, students have to confirm that they are the authors of their solutions.

5. Conclusion and Outlook

This paper gives an overview of the development and application of three social media models developed by the Special Interest Group for E-Collaboration consisting of members from Higher Education Institutions in Switzerland. The models integrate social media as hot topic in e-learning and present concrete ideas on how to enable, support and reflect learning in higher education with the help of digital applications. Thereby the models focus on learning as a collaborative process in which shared knowledge and experiences are provided by the teacher as well as by the students themselves and made accessible within a wide range of social technologies.

These learning models form the basis for the MOOCs business model. This model enables learning interactions between students and teachers *on demand* and the funding of services provided by teachers through a specific payment system. One of its elements includes interaction between students and teachers whereas subject matter and requests are formed by a self-regulated group of students. Another element is the use of learning material which is connected with specific tasks and which requires a self-created, individual output from students.

The next step will be to setup and run a MOOC with this business model. In the long-term, the model should allow for small and medium-sized universities to offer MOOCs and let students invest in learning based on their own requirements.

Acknowledgements

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The need for insurance education among non-financial companies in Poland – survey results

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Abstract

Insurance market is still evolving and an important part of this evolution includes innovation in risk coverage. Such innovation are based on various solutions and a good knowledge of these provides framework for successful implementation of insurance innovation. Lack of such knowledge often results from education gap in insurance-related themes. In this paper we examine whether there is education gap among non-financial companies in Poland. We use respondents' subjective assessment of their level of knowledge and understanding of selected solutions.. We found that there is a visible insurance education gap with regard to more sophisticated solutions and the level of this gap is not associated to company's size.

Keywords: financial education; insurance market; financial innovation; risk management;

1. Introduction

An important course of recent changes of non-life insurance offer for companies is product innovation. These types of innovations are designed with intention to find a better coverage for the financial consequences of the risk. Companies are willing to implement such innovation as their awareness of the integration of risk management and corporate finance issues is growing (Culp, 2002, p.13-14). In other words, companies are aware that the proper implementation of risk management procedure and risk treatment techniques (including insurance as well) helps to create the value of a company (Meulbroek, 2002, p. 56-70; Stulz, 1996, p. 8-24; Smithson & Simkins, 2005, p. 8-18), which is a prime goal of company's existence (Baker & Powell, 2005, p. 10; Damodaran, 2001, p. 11-15; Ehrhardt & Brigham, 2009, p. 9).

In general, the types of innovations within non-life insurance products for companies are based on the combination of risk retention and risk transfer in desired proportions. In particular, risk retention and risk transfer are treated as complementary rather than substitutive methods. Two main types of innovations are to be distinguished. The first type is connected to the final shape of insurance contract, whereas the second type involves the application of more sophisticated mechanisms that combine insurance and financial market instruments (such as derivatives) (Banks, 2008, p. 60; Pain, 2011, p. 16; Wieczorek-Kosmala, 2010).

The problem of innovation within non-life insurance products for companies in countries such as Poland is still a novelty. The insurance market in Poland is relatively young as it was established together with the release of the market economy in 1989. Currently, on the non-life insurance market operates 32 domestic insurance companies

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(Quarterly Bulletin. Insurance Market 4/2012, Part A. Information on Insurance Companies). The market is far more advanced than in previous years. In 2012 the number of insurance policies written for companies was c.a. 7,5 million pieces (Quarterly Bulletin. Insurance Market 4/2012, Part D. Statistical Statement KNF-02.Domestic Insurance Companies), as compared to 4,5 million in 2002 (Yearly Bulletin. Insurance Market 2002 (verified data). Part D. Statistical Statement KNUiFE AI/02). It seems that the next important step in the development of non-life insurance market will be connected with the spread of innovation. Thus, in this study we focus on examining whether there is sufficient level of insurance education for designing and then implementing innovative solutions. The problem remains valid from macro-perspective as well, as it is required to balance the supply of innovation offer by innovation-creators (insurance companies) with the adequate demand of innovation end-users (non-financial companies).

Assuming that the evolution of the insurance market is inevitably going to the growing interest in innovative solutions, we aim at identifying if there is any education gap within the level of knowledge and understanding of some fundamental insurance-related issues. Additionally, assuming that there are symptoms of such education gap, we aimed at establishing if it is connected with the company's size. The examination is based here on the results of a questionnaire. In the questionnaire, a sample of non-financial companies operating in Poland declared their subjective level of knowledge and understanding of selected solutions (this paper presents only partial results of the query which touched numerous aspects of risk finance, including the problem of insurance). The design of the study assumes that the good knowledge and understanding of selected insurance market related solutions (as the result of proper insurance education) creates opportunities for successful implementation of the innovative insurance solutions.

The presented paper contributes to the existing knowledge by bringing to a focus relatively novel problem and, additionally, by proposing original approach and design of research. In didactic context, the findings provide useful indications how to shape insurance education programs.

The remainder of the paper is organized as follows. In section two we discuss the methodology of our research, including the explanation of the method, source of data and questioned issues. In section three we present and discuss the results. The last, fourth section, offers some final conclusions.

2. Methodology

As previously mentioned, the presented data were gathered in a questionnaire by the usage of PAPI method. The questionnaire was conducted in December 2012/January 2013 on a sample of Polish non-financial companies. The 135 questionnaires were accepted for further analysis. In the analysed sample 80 companies (59,26%) were regarded as small and medium sized due to the number of employees up to 249 persons. The remainder 55 companies (40,74%) are regarded as large ones as they employ 250 persons or more (Commission Recommendation 2003).

The questionnaire was directed to non-financial companies of different branches. These companies were exclusively the entities that previously implemented the procedure of risk management. Thus, the respondents represent entities that are somehow involved in different aspects of risk treatment, including insurance.

The questionnaire included (among other issues) a set of questions that were designed to gather data on the subjective assessment of knowledge and understanding of some insurance market related solutions. For this assessment we used a 5-grade scale where answer '1' meant very good knowledge and understanding and '5'

that the respondent had never heard about the questioned issue (indicating the lack of knowledge about the enquired issue).

In particular, the respondents were asked about their subjective assessment of knowledge and understanding of the following solutions:

- deductibles
- caps (limits of coverage)
- excess insurance
- currency derivatives.

The first two solutions (deductibles and caps) are commonly included in the insurance contracts. Thus, we expected that the level of knowledge and understanding of these issues will be assessed by our respondents as high. A deductible means a portion of covered loss that is not paid by the insurer. In other words, deductible represents a sum that is always subtracted from the loss payment. Usually, deductible is expressed in percentage points (Banks, 2008, p. 66; Rejda, 2001, p. 51; Bennett, 2004, p. 90). Deductibles are very common in property insurance. A cap is the limit on the insurer's loss payment liability in the insurance contract (Vaughan & Vaughan, 2003, p. 650; Bennett, 2004, p. 188). Thus, policy caps force the company to retain the risk over and above the cap, which means that the scale of retention may be potentially large. At the same time the company remains uninsured for a large burden of loss. Caps are typically used in commercial liability insurance.

The following two solutions (excess insurance and currency derivatives) are less common. Under excess insurance, the insurer does not participate in coverage of loss until the actual loss does not exceed the agreed amount. Thus, from a company's perspective, the excess insurance covers the burden of loss a company is unable to cover from the retained funds. Formally, excess insurance adds an excess layer to a primary coverage (Rejda, 2001, p. 51; Bennett, 2004, p. 115). Excess insurance is usually offered for larger companies, within custom-made insurance contracts. It is often accompanying innovative risk transfer solutions, such as multi risk products (Banks, 2008, p. 103). Currency derivatives are not directly connected with insurance market issues. However, the mechanism of derivatives is used in most of the more advanced innovation in transferring risk. Thus, a question about the knowledge and understanding of these reflects the potential education gap, which may be an obstacle in the implementation of insurance innovation. Currency derivatives in general, are contracts that specify the prices at which a currency can be bought or sold in the future (as a result the future foreign exchange rate is settled in advance). Currency derivatives consist of a wide variety of instruments, including currency forwards and futures, currency options and currency swaps, traded both on the stock-exchanges and on the OTC markets. Currency derivatives are primarily used to hedge against foreign exchange risk. They are also applied in arbitrage and speculation strategies. (Chance & Brooks, 2010; Flavell, 2010; Kolb, 2003). In the questionnaire we asked about currency derivatives as a few years ago Polish companies involved in trading with these derivatives faced high losses. The issue was widely discussed in media (Mazurek, 2009; Kraskowski, 2009; Domagalski 2012, Karkowski 2009, Chisholm 2010), thus we assumed that the respondents had a chance to familiarise with the functioning of these particular type of derivatives.

The research methodology was designed to test the following two hypotheses:

H1: There is a visible education gap between the level of knowledge and understanding of the most common insurance solutions (deductibles and caps) and more advanced solutions (excess insurance and currency derivatives).

H2: The education gap within the examined issues is higher in small and medium sized companies as compared to large companies.

3. Results and discussion

In order to support or reject the first hypothesis, we conducted the analysis of the percentage share of respondents' indication of the following levels of knowledge and understanding of deductibles, caps, excess insurance and derivatives.

Out of 135 examined companies the majority (c.a. 70%, 90 companies) admitted that they know and understand the functioning of deductibles very well (see fig. 1 and panel A in appendix A). About 16% of companies (22) declared a good knowledge and understanding of deductibles. Assuming the lowest levels of assessment according to the adopted scale (so answers '4' and '5'), 7 companies (5%) declared that they have never heard about such an instrument, similarly 7 assessed their knowledge and understanding of deductibles as poor. With regard to the size of companies, the results are similar regarding the percentage structure of answers (see fig. 1).

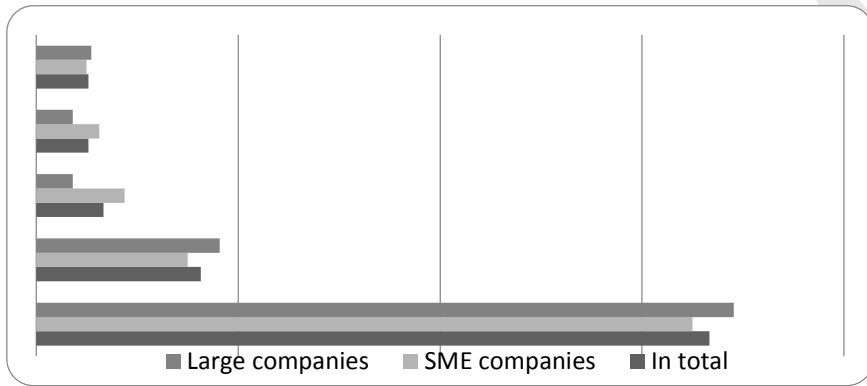


Fig. 1. The respondents' subjective level of knowledge and understanding of the functioning of deductibles (where '1' means 'very good', '5' means 'never heard about it')

Source: Own study based on questionnaire results.

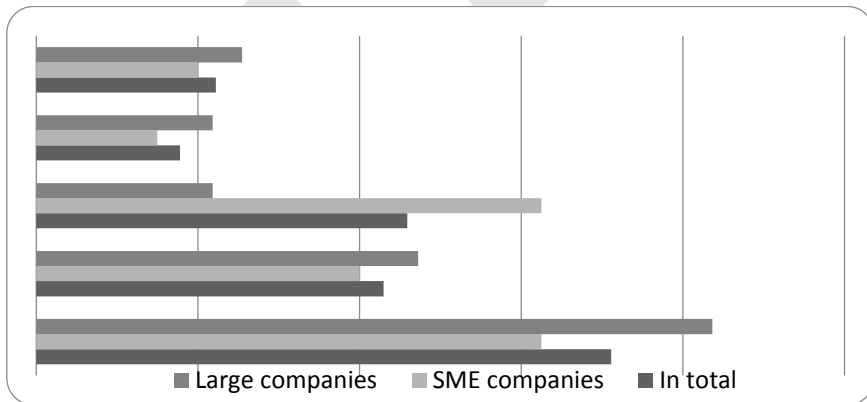


Fig. 2. The respondents' subjective level of knowledge and understanding of the functioning of caps (where '1' means 'very good', '5' means 'never heard about it')

Source: Own study based on questionnaire results.

Fig. 2 presents the structure of answers regarding the knowledge and understanding of the functioning of caps. In this case c.a. 35,5% of the questioned companies admitted very good knowledge and understanding. This solution seems to be a little more familiar to bigger companies (more than 40% of answers) than to small ones (c.a. 31%). Assuming the lowest labels ('4' and '5') about 20% of the questioned companies admitted low or no knowledge and understanding of caps (see also panel B in appendix A).

Fig. 3 presents the structure of answers regarding the knowledge and understanding of the functioning of excess insurance. As expected, a large portion of the questioned companies admitted no or poor knowledge and understanding of this solution. About 47% of the respondents subjectively assessed their knowledge and understanding of excess insurance on the level '5' (which means 'never heard before'). Very good knowledge and understanding was declared only by c.a. 10% of the respondents (see also panel C in appendix A).

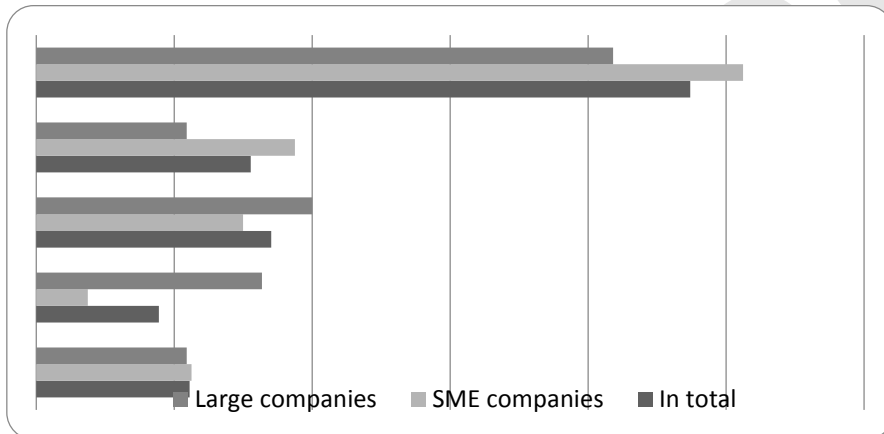


Fig. 3. The respondents' subjective level of knowledge and understanding of the functioning of excess insurance (where '1' means 'very good', '5' means 'never heard about it')

Source: Own study based on questionnaire results.

The results of the assessment of the knowledge and understanding of the functioning of currency derivatives gave no such visible differences as in the case of deductibles, caps and excess insurance. The data presented in fig. 4 indicate that c.a. 27 % of the questioned companies selected label '1', the following 24% label '2' and also 24% label '3'. Thus, the knowledge and understanding of currency derivatives is very good or medium. Similar percentage of the questioned companies indicated labels '4' and '5' (which means very poor or zero knowledge and understanding of currency derivatives).

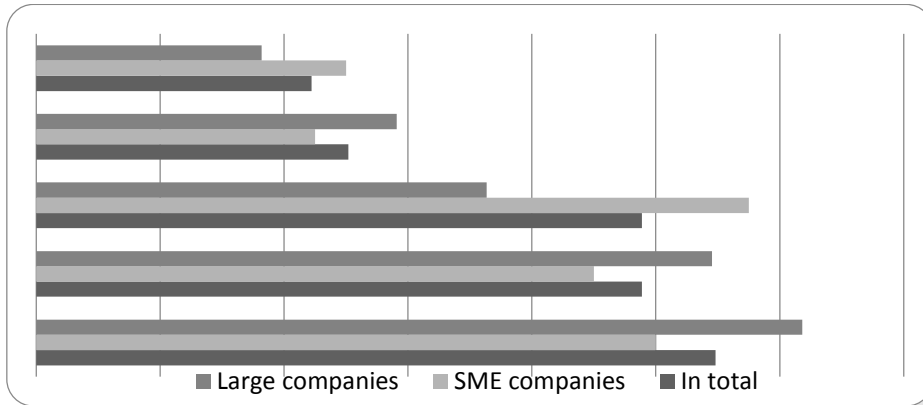


Fig. 4. The respondents' subjective level of knowledge and understanding of the functioning of excess insurance (where '1' means 'very good', '5' means 'never heard about it')

Source: Own study based on questionnaire results.

With regard to the second hypothesis about the association between the level of knowledge and understanding of the examined items and company's size, the gathered data were subject to statistical verification with the use of Cramer's V coefficient. We used here Cramer's V coefficient as a measure of association applicable for qualitative data, according to the formula:

$$V = \sqrt{\frac{\chi^2}{N(q-1)}}$$

where χ^2 is derived from Pearson's chi-squared test, N is the ground total observations and q is the number of rows or columns in a table, whichever is less.

As Cramer's V coefficient varies from 0 to 1, where 0 indicates no association whereas 1 indicates complete association, we interpret the Cramer's V in our analysis as follows: (0-0,2) as very weak association, (0,2-0,4) as weak association (Durrheim & Tredoux, 2002, p. 372; Healey, 2012, p. 320). The results are presented in table 1.

Table 1. Cramer's V coefficient for association of the companies' size and questioned items (deductibles, caps, excess insurance and currency derivatives)

Examined items	Deductibles	Caps	Excess insurance	Currency derivatives
V	0,1218705	0,2394648	0,2466850	0,1447884
Interpretation	very weak association	weak association	weak association	very weak association

Based on statistical analysis, there can be observed very weak association between the knowledge and understanding of the functioning of deductibles and the size of company (as the V coefficient is between 0 and 0,2). Similarly, very weak association was observed association between the knowledge and understanding of currency derivatives and the size of company. However, we found a weak association between the knowledge and understanding of the functioning of (a) caps and (b) excess insurance and the size of a company (as the V coefficient is between 0,2 and 0,4).

4. Conclusions

As it was outlined, there were two plausible hypotheses addressing the problem of education gap regarding the knowledge and understanding of insurance solutions ('traditional' and 'innovative' ones) among Polish non-financial companies. The analysis of the questionnaire results provides some support for the first of the tested hypotheses, but no support was found for the second one.

With regard to the first hypothesis, stating that there is a visible education gap between the level of knowledge and understanding of the most common insurance solutions (deductibles and caps) and more advanced solutions (excess insurance and currency derivatives), only a partial support was found. Regarding two solutions that are common, the results indicate that there is an education gap regarding the functioning of caps. It was expected that the knowledge and understanding of deductibles (commonly met in property insurance) and caps (commonly met in commercial liability insurance) is relatively high. However, the data confirmed this presumption only in case of deductibles. The problem of caps is far less known and understood. There again, regarding two solutions that are less common (excess insurance and currency derivatives) the research results were not homogenous. There is a visible education gap with regard to the knowledge and understanding of the functioning of excess insurance as only small percentage of respondents admitted very good or good level. With regard to currency derivatives, the research results indicate that in the questioned group of respondents this issue is familiar, but with medium level of knowledge and understanding.

With regard to the second hypothesis stating that the education gap within the examined issues is higher in small and medium sized companies as compared to large ones, we found no support. Statistically, there is very weak (deductibles and currency derivatives) or weak (caps and excess insurance) association between the admitted level of knowledge and understanding of the examined issues and the company's size (with the application of Cramer's V coefficient).

To conclude, the study indicated that even in the group of companies that are familiar with risk management issues, which requires the knowledge of insurance as well, there is a visible education gap. This gap covers aspects that are relevant for the spread of innovation within insurance programs for companies.

Finally, we would like to stress that we are aware of the limitations of our study. First of all, the questioned sample of companies is not a large one. It is mostly due to the basic assumption that the questioned companies should be the ones that introduced risk management process in practice, and this is not so common in Poland. Secondly, the examined problems represent only few selected aspects of insurance education – and maybe the proper assessment of the education gap within insurance knowledge requires more questions, addressing other insurance-related issues to draw convincing conclusions. Further inquiries may address problems that have not been examined in our study.

The discussed research results indicating the significant education gap can be used as a motivation to modify the education programs within financial higher education system, introducing more innovation-related information presented in understandable way. It can be also regarded as a contribution to the general discussion about the form and direction of evolution of the contemporary financial education.

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Appendix F.

Answers to the questions about the subjective assessment of the level of knowledge and understanding of the deductibles (panel A), caps (panel B), excess insurance (panel C), and currency derivatives (panel D), on a scale where '1' means 'I know and understand its functioning very well' and '5' means 'I have never heard about it' .

PANEL A – DEDUCTIBLES

	Subjective assessment scale					In total
	1	2	3	4	5	
	52	12	7	5	4	80
SME companies	65,00%	15,00%	8,75%	6,25%	5,00%	100,00%
	57,78%	13,33%	7,78%	5,56%	4,44%	88,89%
	38	10	2	2	3	55
Large companies	69,09%	18,18%	3,64%	3,64%	5,45%	100,00%
	42,22%	11,11%	2,22%	2,22%	3,33%	61,11%
	90	22	9	7	7	135
In total	66,67%	16,30%	6,67%	5,19%	5,19%	100,00%
	100,00%	100,00%	100,00%	100,00%	100,00%	100,00%

PANEL B – CAPS

	Subjective assessment scale					In total
	1	2	3	4	5	
	25	16	25	6	8	80
SME companies	31,25%	20,00%	31,25%	7,50%	10,00%	100,00%
	27,78%	17,78%	27,78%	6,67%	8,89%	88,89%
	23	13	6	6	7	55
Large companies	41,82%	23,64%	10,91%	10,91%	12,73%	100,00%

	25,56%	14,44%	6,67%	6,67%	7,78%	61,11%
	48	29	31	12	15	135
In total	35,56%	21,48%	22,96%	8,89%	11,11%	100,00%
	100,00%	100,00%	100,00%	100,00%	100,00%	100,00%

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PANEL C – EXCESS INSURANCE

	Subjective assessment scale					In total
	1	2	3	4	5	
	9	3	12	15	41	80
SME companies	11,25%	3,75%	15,00%	18,75%	51,25%	100,00%
	<i>10,00%</i>	<i>3,33%</i>	<i>13,33%</i>	<i>16,67%</i>	<i>45,56%</i>	<i>88,89%</i>
	6	9	11	6	23	55
Large companies	10,91%	16,36%	20,00%	10,91%	41,82%	100,00%
	<i>6,67%</i>	<i>10,00%</i>	<i>12,22%</i>	<i>6,67%</i>	<i>25,56%</i>	<i>61,11%</i>
	15	12	23	21	64	135
In total	11,11%	8,89%	17,04%	15,56%	47,41%	100,00%
	<i>100,00%</i>	<i>100,00%</i>	<i>100,00%</i>	<i>100,00%</i>	<i>100,00%</i>	<i>100,00%</i>

PANEL D – CURRENCY DERIVATIVES

	Subjective assessment scale					In total
	1	2	3	4	5	
	20	18	23	9	10	80
SME companies	25,00%	22,50%	28,75%	11,25%	12,50%	100,00%
	<i>22,22%</i>	<i>20,00%</i>	<i>25,56%</i>	<i>10,00%</i>	<i>11,11%</i>	<i>88,89%</i>
	17	15	10	8	5	55
Large companies	30,91%	27,27%	18,18%	14,55%	9,09%	100,00%
	<i>18,89%</i>	<i>16,67%</i>	<i>11,11%</i>	<i>8,89%</i>	<i>5,56%</i>	<i>61,11%</i>
	37	33	33	17	15	135
In total	27,41%	24,44%	24,44%	12,59%	11,11%	100,00%
	<i>100,00%</i>	<i>100,00%</i>	<i>100,00%</i>	<i>100,00%</i>	<i>100,00%</i>	<i>100,00%</i>

4th International Conference on New Horizons in Education

The paradigm shift of the legal education in Malaysia: a research on the global perspectives

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Abstract

The professional training of law graduates in Malaysia has intersects with multiple avenues into the legal profession requiring variant standards of admittance. This scenario has instigated the need to remonstrate the existing state of affairs. Therefore, there has been a great urge by the Bar Council prompting a Common Bar Course (CBC) an90d Examination (CBE) marshalling a new direction in the training of law graduates for legal practice to become a single entry point into the legal profession for both local and foreign law graduates. However, the path to the implementation of CBE into the legal education is not as attractive as it is thought it would be, referring to the amount of effort needed to progress along the way. It has been an ongoing debate among the law practitioners on whether it should be implemented or vice versa, considering some substantial factors. This article begins with the introduction of the legal education in Malaysia. Secondly, it analyses the current entry requirements into the legal profession and how it fair with the standards across the Commonwealth jurisdictions. Thirdly, it examines the global development of legal education systems, the legal framework of CBC together with the justifications by the proponents and the objections raised against such proposal. Then this article attempts to deliberate on the need of the reformation of the legal education in tandem with the global development of legal education across common jurisdictions. Finally the article concludes on the viability of the CBC proposal or any other proposal to resolve the legal education debacle in Malaysia.

Keywords: legal education, entry requirements, malaysia, commonwealth, common bar course (cbc)

1. INTRODUCTION

The development of legal education in Malaysia was set in motion with the establishment of the first Faculty of Law at the University of Malaya in 1972. Local students read law either in University of Malaya, which was based in Singapore, or England preceding the inauguration of the legal education in Malaysia[†]. The syllabuses taught back then in England were pure English law and the students were compelled to study both Singaporean and Malaysian law in Singapore. This legal knowledge taught in both countries fell short to cater the need of the multiracial people in Malaysia[‡]. The existing Malaysian law that time lacks coverage of these other fields of law

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[‡] Malaysia's multi-racial society contains many ethnic groups. There are 3 predominant ethnic groups in Malaysia, which comprise the Malay and other indigenous groups, the Chinese and the Indians. This is supplemented by a wide array of other groups both 'pure' and 'blends' that include those of European, Middle Eastern, Chinese, Indian, Cambodian, Vietnamese descent. In Peninsula Malaysia the Malays are dominant while non-Malay indigenous groups are small in number and called "Orang Asli". In Sabah and Sarawak it is in reverse as non-Malay indigenous groups make up more than half of the population in the two states. In Sarawak the largest indigenous tribe is the Iban

as well. Being an independent country, having its own learning institution is important not only to study and circularize the Malaysian Constitution and laws but also to avoid too much reliance on the universities and professional organizations in other countries to educate the local students[§]. Concurrently, it can also promote the use of Malay language in legal institutions such as the courts^{**}. These were among the driving forces behind the establishment of the Malaysia's first faculty of law^{††}.

There are seven public local universities in Malaysia that offer law programme in their respective law schools namely University of Malaya, National University of Malaysia, International Islamic University of Malaysia, University of Mara Technology, Northern Malaysia University, Malaysia Islamic Science University and University of Sultan Zainal Abidin. However, not all public law schools' graduates will be regarded as a "qualified person" to practice law under the Legal Profession Act (LPA) 1976 due to their law degree recognition^{‡‡}. Currently, there are only five public local law schools that are recognized while University of Sultan Zainal Abidin and Malaysia Islamic Science University are still on attempts to seek recognition of their law degrees from the legal professional body, the Legal Profession Qualifying Board (LPQB)^{§§}, to enjoy the same privileges as the other public local universities that offer law programmes. Besides these public local institutions, there are also several private local law schools, which also offer law programmes in Malaysia^{***}. Multimedia University, HELP and Taylor's University offer local contents in their law programmes while other private law schools such as Nilai University, Advanced Tertiary College, Brickfields Asia College and Kolej Damansara Utama (KDU) offer twinning law programmes with foreign (United Kingdom) universities offered by their foreign collaborators. Management and Science University on the other hand is a mix of business and law degree programme. All the graduates from these private local institutions' with the exception of Multimedia University, are not automatically regarded as "qualified person" under section 3 of the Legal Profession Act 1976. These graduates have to take and pass the Certificate of Legal Profession ("CLP") Examination before they can qualify to practice as an advocate and solicitor in Malaysia. Only Multimedia University has attained full recognition of its law programme recently in December 2012 whereby its graduates are regarded as "qualified person" to practice as an advocate and solicitor in Malaysia.

The syllabus of law programmes in public law schools is very much reflected by the characteristics of Malaysian law, which are pluralistic in nature. In Malaysia, there is an existence of common Law, statutory law, Islamic law and customary law. The supreme law of the land is the Federal Constitution. It dictates the enactment and implementation of other laws, substantive or procedural. After independence in 1957, as the country develops into the new era of modernization and globalisation, Malaysian Parliament has passed various statutes. Legislations were enacted and passed to act as to the framework of new economic activities related to institutional establishment, intellectual property, telecommunication, information technology, science and many

followed by the Bidayuh while in Sabah it is the Kadazan-Dusun. (See: <http://www.visitorsguide.com.my/about-malaysia/13-people-and-culture.html>)

[§] Malaysia has been relying on the professional organizations such as the Inns of Court and the Law Society Solicitor in United Kingdom and the National University of Singapore in Singapore.

^{**} Malay is the official language of Malaysia. See: http://en.wikipedia.org/wiki/Languages_of_Malaysia.

^{††} Sharifah Suhanah Syed Ahmad, Roy Rajasingha (2001). *The Malaysian Legal System, Legal Practice & Legal Education* (pp. 56-63). *Institute of Developing Economies (IDE), JETRO*. Japan: Asian Law Series No.4.

^{‡‡} "Qualified person" is defined in Section 3 of the Legal Profession Act 1976.

^{§§} The Legal Profession Qualifying Board (LPQB) is established pursuant to Part II Section 4 of the Legal Profession Act 1976.

^{***} Private local institutions in Malaysia, which provides law programme are Multimedia University, HELP, Taylor's University, Nilai University, Management and Science University, Advanced Tertiary College, Brickfields Asia College and Kolej Damansara Utama.

others. There are also statues pertaining to consumers, finance, environment, human resources, copyright and so on.

All of these developments are very much reflected in the law syllabus. Law students are required to grasp basic knowledge relating to the combination of the law. However, the emphasis on customary law is quite minimal as emphasis is given to statutory law and in some universities especially International Islamic University of Malaysia, Malaysia Islamic Science University and National University of Malaysia, the Islamic law. Islamic law has become important in Malaysia. It started with the implementation of Islamic law in mainly family matters but now Islamic finance has gained a significant place in Malaysian financial activities. Study of Islamic banking or finance has already become part of law syllabus. Statutory law and case law form the main syllabus in all the law schools. Besides acquiring basic knowledge in the law, students are also exposed to the methods of practicing the law. Although the aims of the law school in exposing students in this aspect is commendable but there are challenges in running these practical courses. Most law schools have to rely on practitioners^{†††} and being part-timers they have to juggle between their own practicing commitment and teaching at law schools^{†††}.

Lawyers are often condemned to cruel jokes, such “*lawyer a liar*” and even called as leeches. But being a lawyer is not just as simple or lucrative as some thought. It is a tough profession, which requires professional skills. It is not a mere profession in the sense of completing the required task and earning an income for it. There are important roles connected to the legal profession. A lawyer is a social guardian. A lawyer has the extra responsibility in society because a lawyer should have the required training and knowledge to speak about social injustice and abuse of power. Lawyer is put a heavy burden on their shoulder in order to ensure that justice is given to the person who deserves it. However, the great responsibility thrust on them may be betrayed by some scrupulous quarters. These are the ills of some of the legal practitioners, which tarnish the nobility of the profession. These ills are supposed to be circumvented by proper legal training, if such a thing is ever possible.

2. ENTRY INTO THE LEGAL PROFESSION IN MALAYSIA

The legal profession in Malaysia is fused; a legal practitioner would be admitted as both advocate and solicitor. Unlike the in United Kingdom counterpart, the legal profession is separated; the graduates may chose to be either solicitor or barrister. In Malaysia, the requirement to enter the legal profession is guided by the Legal Profession Act 1976. In order to enter into the legal profession, the person must be a “qualified person”^{§§§}. What amounts to a qualified person in Malaysia? There are three categories of a qualified person. First, a qualified person means any person who has passed the final examination leading to the degree of Bachelor Laws of the University of Malaya, the University of Malaya in Singapore, the University of Singapore or the National University of Singapore. Second, any person who is a barrister-at-law of England and the third, any person who is in possession of such other qualification as may be notification in the Gazette be declared by the Board to be sufficient to make a person a “qualified person” for the proposes of the Act.

^{†††} By virtue of section 30(1)(c) of the Legal Profession Act 1976, an advocate and solicitor can only have a single profession. This circumvents law lecturers to practise as advocate and solicitor to further enhance their practical knowledge of the law. However, practicing legal practitioner can impart their knowledge as part-time lecturers only.

^{†††} Kamal Halili Hassan (2007). Pluralism in Legal Education in Malaysia (pp. 163-166). *IALS Conference Learning from Each Other: Enriching the Law School Curriculum in an Interrelated World*. Suzhou. (website: <http://www.ials.net.org>).

^{§§§} Section 10(a) of the Legal Profession Act 1976.

Table 1. List of Programme and Universities Recognised by the LPQB

MALAYSIA	SINGAPORE	UK AND IRELAND	AUSTRALIA	NEW ZEALAND
University of Malaya's Bachelor of Law (LL.B)	University of Singapore's Bachelor of Law (LL.B)	The Inner Temple Barrister-at-Law	Australian National University's Bachelor of Law (LL.B)	University of Auckland's Bachelor of Law (LL.B)
University Technology MARA's Bachelor of Law (LL.B)	National University of Singapore's Bachelor of Law (LL.B)	The Middle Temple Barrister-at-Law	University of Sydney's Bachelor of Law (LL.B)	University of Canterbury's Bachelor of Law (LL.B)
International Islamic University Malaysia's Bachelor of Law (LL.B)	University of Malaya in Singapore's Bachelor of Law (LL.B)	Gray's Inn Barrister-at-Law	University of Adelaide's Bachelor of Law (LL.B)	Victoria University of Wellington's Bachelor of Law (LL.B)
National University of Malaysia's Bachelor of Law (LL.B)		Lincoln's Inn Barrister-at-Law	Monash University's Bachelor of Law (LL.B)	University of Otago's Bachelor of Law (LL.B)
Northern University Malaysia's Bachelor of Law (LL.B)		The Law Society Solicitor of the Supreme Court of Judicature	University of Melbourne's Bachelor of Law (LL.B)	University of Waikato's Bachelor of Laws (LL.B)
Multimedia University's Bachelor of Law (LL.B)		King's Inn, Dublin Barrister-at-Law	University of Western Australia's Bachelor of Law (LL.B)	
			Macquarie University's Bachelor of Law (LL.B)	
			University of New South Wales's Bachelor of Law (LL.B)	
			University of Queensland's Bachelor of Laws (LL.B)	
			University of Tasmania's Bachelor of Law (LL.B)	
			University of Technology, Sydney's Bachelor of Law (LL.B)	
			Bond University,	

Queensland's Bachelor of
Law (LL.B)

Murdoch University's
Bachelor of Law (LL.B)

Queensland University of
Technology's Bachelor of
Law (LL.B)

However, it should be noted that a person who has passed the final examination conducted by any of the universities in Australia and New Zealand above leading to the degree of Bachelor of Laws after 1st May 1999 is required to sit and pass the CLP Examination in order to be a “qualified person”. Thus, students who have graduated from the above universities and institutions in Malaysia, Singapore and United Kingdom are exempted from the CLP examination to practice as advocate and solicitor in Malaysia. However, there are 30 other LL.B programmes in selected United Kingdom universities^{****} which are recognised for their graduates to be eligible to sit for the CLP examination in order to be a “qualified person” similar to Australia and New Zealand.

Another criterion of legal practitioner is the person must either be a Federal citizen or a permanent resident of Malaysia^{††††}. In addition, the person must have satisfactorily served in Malaysia the prescribed period of pupillage for qualified persons^{††††}. As from the 1st January 1984, no qualified person shall be admitted as an advocate and solicitor unless, in addition to satisfying the requirements as being stated before and he has passed or is exempted from the Bahasa Malaysia Qualifying Examination^{§§§§}.

The multifariousness of the entrants into the legal profession as mentioned above has raises concern of the declining quality of the legal practitioners due to the very accommodating and lenient mode of entrance. Realizing the increase challenges in the legal world, it has become an eye-opener for the Bar Council to set a reform to challenge the status quo of the legal education system. This is among the rationale to implement the Common Bar Course as a single entry point into the legal profession in Malaysia.

3. THE CERTIFICATE OF LEGAL PRACTICE

The Certificate in Legal Practice, or more commonly known as CLP, was originally introduced in 1984 as a course and examination taken by law graduates from outside Malaysia, who at the time was unable to meet the entry requirements of the Bar Vocational Course in England, in order to become a qualified lawyer in Malaysia. It was originally designed only as a temporary stopgap measure or rescue mission to assist those Malaysians who were not able to sit for the English Bar Finals Examinations because they failed to obtain at least a Second Class

^{****} See the list of universities at LPQB portal (website: <http://www.lpqb.org.my>).

^{††††} Section 11(1)(c) of the Legal Profession Act 1976.

^{††††} Section 11(1)(d) of the Legal Profession Act 1976.

^{§§§§} Section 11(2) of the Legal Profession Act 1976.

(Lower Division) Honours in their British university law degrees^{*****}. It was then a solution to those who cannot apply to be a Barrister but ends up as another recognised legal qualification to be an advocate and solicitor in Malaysia. Later on, it became compulsory for all Malaysian holders of LL.B's from overseas universities who were not called to the Bar in the United Kingdom.

The examination is conducted by the Legal Profession Qualifying Board of Malaysia and is governed by the Legal Profession Act 1976. The Board allows degree holders from certain universities in the United Kingdom, Australia, and New Zealand to sit for the examination. Law graduates from local universities are not required to take CLP, but are required to complete an additional year of practical studies in their respective universities. After obtaining the certificate, the student will normally proceed to do chambering which is a form of apprenticeship similar to a pupillage in England. After completing nine months of chambering, the student may finally be called to the bar and become a qualified lawyer.

The CLP was originally formulated and taught in University of Malaya. However, due to the increasing number of law graduates per year, it was soon obvious that University of Malaya would not be able to accommodate every student who wished to study for the CLP. Thus, in order to handle the entry of law graduates, such private institutions such as Advance Tertiary College and Brickfields Asia College were brought in to handle the problems and University of Malaya no longer plays a role. The students are required to take and pass 5 papers in one sitting and may not accumulate the results. The papers are General Paper, Evidence, Civil Procedure, Criminal Procedure and Professional Practice.

Prior to 1999, only law graduates from United Kingdom and Ireland were required to study for the CLP after completing the LL.B, unless they completed the United Kingdom/Irish BAR course. Australian and New Zealand graduates, having studied the relevant compulsory subjects during their LL.B, would be called to the BAR in their respective country, and would be regarded as "qualified persons" under section 3 of the Legal Profession Act 1976. This changed after 1999, where the qualification rules were amended to require Australian or New Zealand LL.B holders to pass the CLP exam as well. The reasons for the amendment can loosely be described as quality control. Thus, under current system the CLP is now compulsory for those without the following qualifications:

- LLB degrees from recognized Malaysian Public Local Universities.
- LLB degrees from the National University of Singapore and the University of Singapore.
- Barrister-at-law from the four Inns of Court, United Kingdom, and King's Inn, Ireland.

4. ENTRY INTO THE LEGAL PROFESSION ACROSS JURISDICTIONS

The study of law is unique as the substance of the programme is regionalised, unlike other professional studies such as medicine, engineering or accounting. A university providing law programme would eventually offer law courses tailored specifically to a certain locality. In fact, a law study is usually accommodative or relevant to a particular geographical area. Even in the South East Asia Region, the study of law in Malaysia could not even be the admission benchmark to the legal profession in Indonesia and vice versa. This paper summarizes the diversity of admission requirement to the legal profession of various common jurisdictions i.e. Singapore, Australia, Hong Kong and England and Wales. These countries are selected mainly because they are Commonwealth countries, having their initial laws substantially sourced from the common law of England.

^{*****} Roger Tan (5 Nov 2011). High Time for a new Bar. The Star Online. (website: <http://thestar.com.my/news/story.asp?file=/2011/2/6/focus/8011437&sec=focus>).

4.1. Singapore

The requirement to become a “qualified person” in Singapore is provided under section 2 of Legal Profession Act (Cap. 161) (Singapore). It requires the candidate to have a Bachelor of Law degree with at least lower second-class honours from National University of Singapore or Bachelor of Law degree from Singapore Management University with at least grade point average of 3.00 or above. However, for foreign law graduates without a law degree from the 2 local universities, Singapore only recognised LLB (Hons) awarded by the selected law schools from the United Kingdom, Australia, New Zealand and United States of America. In addition to fulfilling certain other criteria^{††††}, the foreign law graduates from the recognised institutions are required to pass Part A of the Singapore Bar Examinations that cover the following areas; Criminal Law, Singapore Legal System and Constitutional Law, Land Law, Company Law and Evidence Law, before they can be considered as “qualified person”.

The qualified person must then complete successfully two other steps before he can be admitted into the legal practice. Firstly, attending preparatory course leading to Part B of the Singapore Bar Examinations, and thereafter must pass the examination. Secondly attending practice training period, which is to be served for 6 months. The candidates will be supervised by a practising solicitor and they are exposed to 2 or more areas of practice such as civil litigation, criminal litigation, corporate practice and conveyancing practice^{††††}.

The preparatory course leading to Part B of the Singapore Bar Examinations is conducted full time for duration of 5 months. It consists of 3 major components as follows:

- 7 examinable compulsory subjects - The courses are Civil Litigation Practice, Criminal Litigation Practice, Corporate & Commercial Practice, Real Estate Practice, Family Law Practice, Ethics & Professional Responsibility and Professional Skills.
- Electives subjects - The candidates must choose 2 out of 6 courses namely Admiralty Practice, Advanced Corporate Practice, The Law and Practice of Arbitration, Mediation Skills, Wills, Probate and Administration Practice and Intellectual Property Law Practice.
- Non-examinable components - The components are Legal Technology, Clinical Training Programme, Revenue Practice Lectures and Analysing Company Financial Statements for Legal Practice.

Both Part A and Part B of the Singapore Bar Examinations are conducted by the Singapore Institute of Legal Education^{§§§§§}, a statutory body established under the Legal Profession Act (Cap. 161). The Institute is managed by a Board of Directors comprising representatives from various stakeholders in the legal community. It is entrusted with maintaining and improving the standards of legal education in Singapore, and has powers to review the implementation of initiatives, programme and curricula relating to legal education in Singapore, including diploma, undergraduate and postgraduate programme, and continuing professional development. Its objectives are:

- Maintains a register of qualified persons seeking admission to the Singapore Bar.

^{††††} The foreign law graduates for Singapore’s admission must fulfill the following criteria namely; obtain at least lower second class honours, rank amongst the highest 70% of the batch, full-time internal candidate of the particular university and complete the degree at least within 3 academic years.

^{††††} David Quark (2011). The Singapore Bar Examinations. *Conference on Legal Education in Malaysia – Qualifying for the Bar: Standards Across Jurisdictions*. Kuala Lumpur.

^{§§§§§} For further information, see website: <http://www.sile.org.sg>.

- Oversees Part A of the Singapore Bar Examinations.
- Conducts Part B of the Singapore Bar Examinations and the Preparatory Course leading to the Examinations.
- Conducts the Foreign Practitioner Examinations.
- Coordinates and supervises the Continuing Professional Development scheme.

4.2. Australia

Similar to United Kingdom, the Australian legal profession in private practice is divided into two, namely barristers or solicitors and they are known as “legal practitioner” in common. This profession is regulated at the state or territory level. Practical Legal Training (PLT) takes place prior to admission to practice, which focus more on solicitors’ works. In addition to PLT and upon being admitted to practice, to become a barrister, a person is required to undertake Bar Training Course^{*****}. Although PLT is administered and regulated at the territorial level, the requirements for admission to practice in Australia are essentially similar to all territories which consists of:

- Completion of specified academic requirements
- Completion of specified Practical Legal Training (PLT)^{†††††} requirements
- Assurance that the person is a fit and proper person to be admitted to practice.

The objective of PLT is to ensure a person to attain the standard of competencies as set forth in the National Competency Standards^{†††††}. The core statement in the National Competency Standards is that at the point of admission, each applicant will be expected to provide evidence that the applicant has achieved the requisite competence in the following Skills, Practice Areas and Values:

Table 2. National Competency Standards

SKILLS	PRACTICE AREAS	VALUES
Lawyer’s Skills	Civil Litigation Practice	Ethics and Professional Responsibility
Problem Solving	Commercial and Corporate Practice	
Work Management and Business Skills	Property Law Practice	
Trust and Office Accounting	One of the following: Administrative Law Practice	

^{*****} Christopher Roper (2011). The Legal Practice Courses in Australia (pp 33 – 40). *Conference on Legal Education in Malaysia – Qualifying for the Bar: Standards Across Jurisdictions*. Kuala Lumpur.

^{†††††} The PLT requirements vary according to states/territories.

^{†††††} The National Competency Standards outline the core standards, which are required by way of Practical Legal Training. These standards were developed by Australian profession Legal Education Council (APLEC) in conjunction with the Law Admissions Consultative Council (LACC).

Criminal Law Practice

Family Law Practice

And one of the following:

Consumer Law Practice

Employment and Industrial Relations Practice

Planning & Environmental Law Practice

Wills and Estates Practice

In this regard, it is important to note that the curricula of all PLT courses conform to the National Competency Standards. In the course of undertaking a PLT course, the person is required to take a Graduate Diploma in Legal Practice for a certain period depending on the curricula set by the PLT providers^{§§§§§§}.

On the other hand, the Bar Training Course or also known by various names^{*****} by states in Australia, are conducted at territorial level and the syllabus of the course depends on the contents set by each training providers. Despite the variations in the syllabus, the course generally focuses on advocacy, ethics drafting of pleadings and procedural matters.

4.3. *Hong Kong*

Similar to Australia and United Kingdom, the legal profession in Hong Kong is separated between solicitor and barrister. There are two routes for a law graduate to practice as a solicitor in Hong Kong; via the “trainee solicitor” and the “overseas lawyer” route.

In the “trainee solicitor” route, the person who wishes to qualify as a solicitor must hold a law degree either from the University of Hong Kong, the City University of Hong Kong, The Chinese University of Hong Kong or other recognised tertiary institution under Common Law jurisdiction. Such person must obtain a Postgraduate Certificate in Laws (PCLL)^{††††††}. In addition, the person must also complete employment as a trainee solicitor for a period of 2 years in order to be eligible for admission to practice as solicitor in Hong Kong. For those who are not eligible to PCLL admission, they must pass the Hong Kong Conversion Examinations for PCLL Admission, which is conducted twice a year covering the following courses:

Table 3. Hong Kong Conversion Examinations for PCLL Admission

^{§§§§§§} The PLT providers in Australia are Australian National University, Bond University, The College of Law (Brisbane, Melbourne, Perth and Sydney), The Law Society of South Australia and Leo Cussen Institute.

^{*****} It is known as “Bar Practice Course” in the states of New South Wales and Queensland, and as “Bar Readers’ Course” in the state of Victoria.

^{††††††} PCLL is defined in section 2(1) of the Legal Practitioners Ordinance (Cap 159) as “a Postgraduate Certificate in Laws awarded by the University of Hong Kong, the City University of Hong Kong, the City Polytechnic of Hong Kong or The Chinese University of Hong Kong”. In PCLL, all students have to demonstrate competence in 11 core subjects as set by the Law Society of Hong Kong namely Contract, Tort, Constitutional Law, Criminal Law, Land Law, Equity, Civil Procedure, Criminal Procedure, Evidence, Business Associations and Commercial Law.

Core Courses	:	Civil Procedure Criminal Procedure Commercial Law Evidence Business Associations
Top-up Courses	:	Hong Kong Constitutional Law Hong Kong Legal System Hong Kong Land Law

Upon completion of the traineeship and with the declaration by the supervisor that the trainee solicitor is fit to be a solicitor, he can then apply for admission as a solicitor.

In the “overseas lawyer” route, if the person has been admitted in a common law jurisdiction, he must have at least 2 years experience in the practice of law of his original jurisdiction to be eligible to sit for the Overseas Lawyers Qualification Examination. There are 4 written and 1 oral examinations that must be passed by the person, namely written examination covering Conveyancing, Civil & Criminal Procedures, Commercial & Company Laws and Accounts & Professional Conduct; and oral examination covering the principles of Common Law^{*****}.

To become a barrister, a person must be qualified for admission under section 27(1) of the Legal Practitioners Ordinance (Hong Kong) by being a PCLL holder, a solicitor in Hong Kong or an overseas lawyer. Holders of non-law bachelor degrees can either complete the LL.B course or pass the Common Professional Examination of England and Wales (CPE) before taking the PCLL. For qualified solicitors in Hong Kong, they must have been admitted as such for at least 3 years (either immediately or in any case not more than 12 months) before the date of their application for admission as barrister and during that time they were in practice as solicitors in Hong Kong or were employed by the Government as legal officers^{§§§§§§}. The applicants must undertake pupillage (similar to being “trainee”) for 6 months in order to be eligible for admission as barrister. In order to practice, however, they must undertake pupillage for a further six months during which time they have a limited right of practice^{*****}.

4.4. *England and Wales*

Within England and Wales jurisdiction, the legal profession is separated between solicitors and barristers. In order to practice as solicitor, the person must have a Bachelor of Law degree programme with a minimum of 3 years study duration. The law graduates will then undergo Legal Practice Course (LPC) for a period of one year

^{*****} Becoming a Solicitor (January 2010). The Law Society of Hong Kong (pp. 3 - 8). Hong Kong.

^{§§§§§§} Legal officers as defined in the Legal Officers Ordinance, Cap. 87.

^{*****} The details of the qualification and admission requirements are detailed provided by the Hong Kong Bar Association.

and followed by traineeship for a period of two years^{††††††††}. For Non-law degrees programme, it must be followed with a conversion course vide a Graduate Diploma in Law (GDL). Upon completion of GDL, they would join the LPC and followed by a two-year training contract. For legal officers with at least 5 years professional experience in law offices, they can follow a mix of evening and weekend courses and examinations. They are also required to pass LPC, and are eligible to apply for exemptions from the two years Training Contract based on their professional experience. For foreign lawyers, they are required to pass the Qualifying Lawyer Transfer Test before they are allowed to practise as solicitors in England and Wales^{††††††††}.

As for the route to become a barrister, the person must hold a law degree under a minimum of a three years programme and must undergo a Bar Professional Training Course (BPTC) of one year that provides practical training focusing on advocacy skills. Upon completion of the BPTC, the person will undergo practical training called a pupillage for one year. The following are some the salient points with regard to the legal education and the training that must completed before a person can practice as solicitor or a barrister in England and Wales:

4.4.1. *The law degree*

The degree must be one that is recognised as a Qualifying Law Degree (QLD), and to fit this purpose, all law schools must comply the requirements of the Joint Academic Study Board (JASB). The Board are consists of a joint committee of the Solicitors Regulation Authority and the Bar Standards Board that determines substantive aspects of the minimum necessary content of a QLD.

4.4.2. *The duration of the a law degree*

- 3 years law degree - The standard undergraduate law degree normally takes three years to complete. When the study of law is entwined with another discipline, then the course often takes four years to complete.
- 2 years law degree - In respect of such degree, the entry requirement is that candidates must have an undergraduate degree. The senior status degree takes two years and very often complies with the JASB requirements so that its graduates are considered to have completed the appropriate academic stage.
- One-year law diploma - This is known as GDL where the students have to undergo one-year period of study under this programme.
- Four-year exempting law degree - Some universities in England and Wales provide exempting law degrees whereby students can do both academic and professional courses in one continuous stream.

4.4.3. *The law school*

Apart from complying with the requirements outlined by the JASB, the law school must also comply with the subject benchmarks established by the Quality Assurance Agency for Higher Education that operates within the Framework for Higher Education Qualifications.

^{††††††††} This is considered as the mainstream, route to enter the profession of solicitor. See: Julian Lonbay (2010), Legal Education in England and Wales. PILnet. p. 3.

^{††††††††} See: Lonbay (2010). p. 4.

4.4.4. *The mandatory elements in the QLD*

As required by the JASB, the curriculum of the QLD must cover the foundation courses namely Criminal Law, Equity & Trusts, law of the European Union, Obligations 1 (Contract), Obligations 2 (Tort), Property / Land Law and Public Law that consists of Constitutional Law, Administrative Law and Human Rights Law. On top of these courses, the students must receive training in legal research.

4.4.5. *The vocational stage*

The LPC and the BPTC are undertaken after the academic stage. The contents of these courses are strongly regulated by the professions, namely the Solicitors Regulation Authority and the Bar Standards Board respectively. In order to become a solicitor, one must pass LPC and enrol in the Solicitors Regulation Authority. Whilst in order to become a barrister, one must join an Inns of Court and thereafter undergoing and passing the BPTC. It is also a pre-requisite that the candidate must achieve at least a lower second-class degree at the undergraduate if he intends to become a barrister.

4.4.6. *Apprenticeship under the tutelage of practitioners*

Professional training under supervision of practising and experienced practitioners are made compulsory for both branches of professions. To become a solicitor, a person must complete the traineeship under a training contract for a period of 2 years and he will be supervised by a senior solicitor within that duration. As for barrister, the person must place himself in pupillage for a period of one year under the supervision of an experienced barrister. The pupillage is divided into 2 parts; the first part, the non-practising six months where the pupil will work with his supervisor, and the second part, practising six months where the pupil can undertake to supply legal services and exercise rights of audience in court, with the supervisor's permission.

5. REFORMS OF LEGAL EDUCATION IN MALAYSIA

Studying law is not a stroll in the park. There are so many challenges waiting for law students. Among the challenges facing by law students were discussed at the 12th Biennial Malaysian Law Conference organized by the Bar Council that is on the issue of the common bar examination. This issue arises as there are many complaints on the CLP. The CLP examination is very difficult to pass. The passing rate lingers at 40% during the recent years. Furthermore its initial objective was only to act as temporary measures. In 1989, C.A. Morrison QC who had conducted a study on the CLP examination recommended that it should continue but noted it lacks skills training.

As a result, the Bar Council set up a Special Committee to examine the entry requirements into the profession in 1993. The Committee had made a few recommendations which among others, all recognition of overseas law degrees including that from the United Kingdom, for the purpose of admission to the Bar be henceforth undertaken by the Qualifying Board; a review be undertaken of all United Kingdom law degrees from the standpoint of standard and quality; that the Qualifying Board stipulates a minimum requirements for entry into local universities; the minimum requirements for entry into the CLP programme be set at second Class lower of LL.B Honours; only LL.B external of University of London is recognized; the historical relationship with the

Council of Legal Education in United Kingdom be reviewed and there should no longer be any automatic recognition of a law degree in Malaysia for purposes of admission.

Consequently, the Ministry of Education of Malaysia in 2001 on the other hand proposed that the legal education be reviewed in order to face the developments in the new millennium. University of Malaya was requested to conduct the study and submit a report namely “Aims and Objectives of the Law Programme in Public Institutes of Higher Education”. The report inter alia recommended for a common bar examination. The Minister at the Prime Minister Department called for a meeting in 2003 comprising of members of the Bar, judges and academician to look at the possibility of implementing the common bar examination but so far nothing materialized until today except for proposals of its implementation by the joint working committee between the Bar Council and the LPQB. Through a mix of tense human reactions and ambiguity in the entrance system into the legal profession in Malaysia, the Bar Council infuses the legal education in Malaysia with an energy that makes for a compelling reform through the CBC proposal. The Executive Summary of the Bar Council’s Proposed Framework vehemently stress that the Bar Council has consistently taken the stand that the CBC should be the ultimate filter for entry into the legal profession to ensure quality. From the proposed framework, the debut of the CBC is to ascertain that only person who is most outstanding and excellent can permeate the gates into the legal profession.

The need for a new legal education structure is further enhanced by the findings of the Bar Council Employability Survey^{§§§§§§§§}. The survey obtained the evaluation by the law firms of the current law graduates (based on a set of individual attributes and skills set) with regard to the following “categories” of law graduates:

- Local law graduates;
- Foreign law graduates with CLP;
- Foreign law graduates without CLP; and
- London External with CLP.

The Employability Survey revealed that comparing graduates across the board, the best performers were clearly foreign law graduates, both with and without CLP. Foreign law graduates without CLP performed better in English proficiency, with 68% and 67% as against 66% and 65% on oral and written scores respectively. Foreign law graduates without CLP also scored higher in communication skills, confidence, self-presentation, analytical skills and providing creative solutions, whereas those with CLP scored higher in knowledge of the law.

The overall “sentiments” of firms employing law graduates shows that while the levels of satisfaction are relatively even amongst the different graduates, however the levels of dissatisfaction is most prevalent towards local law graduates. In this regard, 23% of the respondent-employers were satisfied with foreign law graduates with CLP, with 3% stating their dissatisfaction. 13% stated their satisfaction with foreign law graduates without CLP, whilst 17% were satisfied with graduates from the London external with CLP programme. 16% of the respondents were unsatisfied or very unsatisfied with local graduates.

^{§§§§§§§§} Steven Thiru and Kenneth Ang (2012). The Bar Council’s Employability Survey: How Employable are the New Entrants to the Bar?. *Praxis*. Oct - Dec 2012. (pp. 16-19). Kuala Lumpur: Bar Council.

An independent survey by University of Sultan Zainal Abidin on the students and academicians of public and private local law schools was conducted in 2012 on the reforms of legal education in Malaysia. Surprisingly, the perception of students of private local law schools tilt to agree (19%) that the current CLP programme and structure failed to produce quality legal practitioner, as compared to 7% disagreeing. Majority of the students from public (59%) and private (18%) institutions also agreed that admission to the legal profession need to be re-structured to enhance the quality of legal practitioner. The others appear to be neutral or unable to rate. 43% of the private local law students and 30% of the public local law students agreed for CBC to be the single entry point for both local and overseas law graduates into the legal profession, as compared to 3% and 29% disagreeing respectively. However, the majority voted to disagree that CBC should be conducted separately from the university education system.

6. THE PROPOSAL FOR COMMON BAR COURSE

CBC was the effort from the Bar Council in order to improve the quality and enhance the standards of the legal expertise as well as the administration of justice. This examination under the CBC which is said to be fair to all law graduates by the Bar Council will be the ultimate filter for the entry to the legal profession and ensure the law student to be well prepared and trained before enter the legal profession. The proposed framework of CBC includes the governing principles of CBC, which are as follows:

- The focus of the CBC should be on skills/practical training (as opposed to testing on legal knowledge) to equip the “student-at-law” for legal practice in Malaysia.
- The vocational nature of the training will be complimented with academic (substantive law) elements, only where necessary. Thus, the CBC will not deal with substantive law, which should remain the domain of the universities/law colleges.
- The CBC must combine the modern experience of other commonwealth jurisdictions and the local peculiar requirements (in a fused profession, with the inherent weaknesses).
- The CBC should prepare the “student-at-law” for the first two years of practice.
- The CBC should also enable the “student-at-law” to choose (if they so desire) to become either an advocate (litigation) or a solicitor (non-litigation). This is achieved by giving the student-at-law the option to fashion their training to cater for their choice.
- The CBC must deal with some of the shortcomings in pupillage and enhance the training during pupillage.

The Common Bar Course proposed structure has gone through some changes since 2008. The initial proposal incorporate the following structure:

- 5 semesters over a period of 20 months (84 credit hours).
- Semesters 1, 2 and 3 entail full time study and compulsory subjects – aptitude, basic legal skills and core areas of practice.
- The first three semesters: bedrock of legal practice – stringent assessment system and would sieve out those who do not possess the requisite qualities – “a guillotine”.
- Student Law Office Programme (Semesters 2 and 3) – to stimulate a legal environment in a small law firm.
- Semesters 4 and 5 would be part-time with the mixture of compulsory and elective subjects – tailor training to meet choice of practice.

- Pupillage to run concurrently with Semesters 4 and 5 / Peer learning and to deal with the shortcomings of pupillage.

The 2008 proposal of the CBC's syllabus and course content was completed by the committee and was debated on October 2008 at the Council meeting. The main subjects that have been proposed by the committee are as follows:

Table 4. 2008 CBC Syllabus Proposal

SEMESTER 1	SEMESTER 2	SEMESTER 3 & 4	SEMESTER 5
<ul style="list-style-type: none"> • Practical Aspects of Malaysian Law. • Legal Interpretation Skills (Constitution, Statutes and Case Law). • Practice Management Skills. 	<ul style="list-style-type: none"> • Legal Language (English and Bahasa Malaysia for law) and Communication Skills (including IT skills). • Lawyering Skills (e.g. Techniques of analysis) and Practical Legal Research. • Legal Ethics and Professionalism, Business and Solicitors Accounts. • Interviewing and Client Counselling Skills, Opinion Writing. 	<ul style="list-style-type: none"> • Civil Procedure. • Criminal Procedure. • Drafting Skills. • Evidence. • Real Property Practice. • Commercial and Corporate Practice. • Introduction to Advocacy. • Negotiation Skills. • Alternative Dispute Resolution-Mediation and Arbitration. 	<ul style="list-style-type: none"> • Remedies and Enforcement / Execution Proceedings as well as a host of other electives.

Based on the above-proposed syllabus, the programme will run for the period of two and a half years. Apart from the core subject that must be taken during the LLB course, the committee also inserted practical courses to familiarize the lawyer-to-be with the lawyering skills and practical area.

However, CBC structure has undergone another proposal change in 2012 where it is now divided into 2 parts; the Professional Year and the Advanced Professional Year after taking into account some of the objection raised by the public local law schools. The Professional Year shall have 2 semesters period of study and students who has graduated from local law school and completed the fourth year local LL.B programme would be exempted from the Professional Year structure. The Advanced Professional Year would also have a 2 semesters period of study with semester 1 focusing on aptitude, advanced legal skills and core areas of practice whilst semester 2 would be part-time incorporating concurrent pupillage period. The Professional Year utilising the CBC curriculum and the Advanced Professional Year will be supported by the Bar Council working in collaboration with the CBC Committee and the LPQB.

Further, in connection with finances, the Bar Council has decided that the CBC should be run on a non-profit basis. Thus, public funding from the government would be required to set up the necessary infrastructure and to cover administration costs. CBC has actually had been discussed for over past 15 years but several attempts made related to the Course over those years ended in futility. The Bar Council opined that CLP is outdated and no longer relevant to the current situation as in most of countries today had adopted more innovative and practical professional legal education in order to train their lawyer.

With the introduction of a CBC, law faculties in universities can be left to design their legal education at the academic level and leave the professional training to those running the common course and examination. This way, law lecturers in universities can pay full attention to the academic, theoretical and conceptual aspects of the law and the legal system rather than mixing their roles as academics as well as professional legal trainers. The CBC will also provide fair and clear opportunities for law faculties in universities to measure the quality of the legal training they had been providing.

7. THE OBJECTIONS AND CHALLENGES

In setting up this programme the challenges to implement CBC cannot be avoided. The Bar Council initiatives are not without hindrance from the other stakeholders. The Public Law School Deans' Council has issued a joint memorandum objecting to the 2008 CBC Proposal^{*****}. Despite appreciating the concern shown by the Bar Council in the need for a reform in the professional legal education in Malaysia by upgrading the teaching and learning of courses taught in the professional year through the implementation of the CBC, the public law schools have decided that the 2008 CBC Proposal cannot be accepted in entirety.

The first guiding principle adopted in the CBC proposal relating to a single point of entry into the legal profession would consequent in withdrawal of recognition of the Bachelor of Laws (Honours) graduates of 6 local universities as "qualified persons" under the Legal Profession Act 1976. These established public law faculties already have national and international accreditations for providing a solid foundation to produce law graduates who have proven their ability to enter the legal profession in Malaysia and elsewhere. Such consequences would downgrade the law degrees presently offered by the public universities that could raise important legal issues of substantive and procedural justice, if done arbitrarily. Universities have a legitimate expectation that recognition, once granted, should not be revoked without just cause and without an adequate prior hearing. It would also be extremely unfair for the younger public schools such as Northern University Malaysia, University of Sultan Zainal Abidin, Malaysia Islamic Science University and Multimedia University that have in the last 2 years, undergone rigorous auditing of its programme by the Bar Council for recognition of its programme, to be subsequently required to overhaul its programme again to accommodate the CBC. The CBC proposal appears to discount the wealth of experience accumulated by the long standing law faculties, their curriculum, the success of their students and the seniority of the teaching staff, some of whom have been campaigners in the law for many years.

As the Bar Council continues to propagate the programme for the purpose to cure the problems and "illness" in the legal profession, it is contended CBC is not the solution to the problems and can never be the instrument to enhance the integrity of the legal profession. It appears to be another paper qualification and the problems inflicted to CLP would be inherited by CBC. It cannot ensure inculcation of professionalism. The real root for the problem can be traced to human trait of greed, which causes corruption and abandonment of ethics and morality in their personal pursuit of self-wealth.

The proposed CBC was borne out of the failure of the CLP. The CLP was established as a 'rescue operation' to create a 'qualifying pathway' for Malaysian students who had undergone their legal education in England or offered by English universities who are unable to be admitted into the Inns of Court and Bar Examination due to not achieving an honours degree of 2nd class lower division and above. It has been acknowledged that the CLP is no longer able to prepare student lawyers to meet the demands and challenges in the field. Weaknesses in the

***** The Joint Memorandum was endorsed by all the 7 Public Law Schools Deans in 2011. Some of the objections mentioned in this Article are extracted from the Joint Memorandum document.

CLP should not be used as a reason to withdraw the recognition already given to law graduates of local universities.

The law faculties of public universities support concrete efforts of the Bar Council to incorporate continuous skills training during the practical and professional stages of legal training. Even at the academic stage, the lines between academic teaching and professional teaching, especially for professional courses like law, over the years, are quickly blurring. The gap between theory and practice is constantly being bridged in all the law faculties of public universities specifically during the very comprehensive nature of the curriculum review prescribed by the Malaysian Qualifications Agency (MQA) and the Ministry of Higher Education. Such curriculum review includes aspects such as specifying learning outcomes and the inculcation of soft-skills in the teaching and learning. Much like the professional training programme in other jurisdictions like Singapore, Hong Kong and Australia, the law faculties in public universities have also inculcated skills training in their teaching and learning, incorporating methods such as problem based learning, advocacy skills, blended learning strategies using IT and experiential learning in the form of compulsory and credited industrial attachment. The law faculties of public universities are mindful of the merits of having practitioners or those who have had experience in practice to teach professional papers and towards this end have employed practising lawyers as well as retired lawyers to teach such papers. At the least, lecturers teaching such papers must first qualify as an advocate and solicitor.

The most crucial challenge would be in respect of financial, as the implementation will involve setting up a new legal institution to gather up and train more than thousands of law graduates at a single time. Although the 2008 CBC Proposal mentions that the CBC should be run on a 'non-profit basis' through public funding for infrastructure and administrative costs, considerable costs would still be likely incurred in implementing the course in light of the experience of other jurisdictions that implement Bar Courses and professional training courses such as United Kingdom, Singapore, Hong Kong and Australia. Inevitably, the costs will be transferred to the students, rendering the profession to be beyond the reach of many, especially the low and medium income families. The result is that the large majority of the Malaysian population, especially those coming from the rural areas or those from the poorer communities would be marginalised. Public institutions of higher learning have historically played the role of providing affordable education for equitable social redistribution so as to enable all sections of society to participate in the various sectors of the economy. It is therefore wise to preserve this important role of the public law schools in relation to legal education in light of Malaysia's status as a developing nation and in line with the economic developmental policies of the country.

This aim of CBC to be the ultimate filter for entry into the legal profession is not in line with the national education system that seeks to enable access to education that would then lead to gainful employment. It also disregards the fact that "filtering" of candidates into the law programme of public universities has already been done at the admissions stage, both at the foundation studies and at direct intake levels.

The vacancy of professional full time legal trainer and staff also needed to be filled to avoid any hiccups while running the programme. Reliance to part timer may cause difficulty to the management of the programme. The qualification to be appointed as the legal trainer will be determined by the Bar Council and the LPQB. On the other hand, the universities and the law faculties have trained large numbers of teaching staff most of whom hold postgraduate qualifications and have acquired international exposure. It is the business of the universities to teach and therefore the academic staffs are well trained in pedagogy, which cannot be said of those who come only from purely legal practice backgrounds.

For the public local law schools' graduates, the introduction of this new system will burden them. Distinct from their overseas law graduates, the public local law schools' duration of study is one year longer. This

additional one-year is used by the local law faculties to teach the law graduates about the practical subjects rather than theoretical subjects, which is the crux for the introduction of CBC. Graduates from local public universities are more sceptical of CBC, as their advantage to be exempted from taking CLP is coming to an end. There is also the further issue of costs to take CBC. The obvious burden is for those who took study loans from National Higher Education Fund or another financial body. Additional loan need to be applied for them to continue another two and half years For CBC. Thus, such extended duration will have financial implications on the students that have not been adequately dealt with in the CBC Proposal.

Those who propagates CBC maintains that the course is not and should not be viewed as a tool to cover any policy in favour of the foreign law graduates. The situation is that there will be one single underlying criteria for the qualification to be a legal practitioners in which this qualification are not determined by the university from which one obtained his or her law degree. This course will abolish the discriminatory nature and effect of the dual-system of qualification in Malaysia. The CBC examination would be a standard benchmark for all in producing good and competent future lawyers. This justification makes the questionable assumption that the Bar examination are inadequate and burdensome are irrelevant. In taking such examination, pressure to maintain high grades for prestige, pride, and employability will encourage the law graduates to work harder.

8. RECOMMENDATIONS

Malaysia has to move in line with its counterparts. Every other common jurisdiction has evolved to require some sort of standard benchmark for admission to the legal profession. Thus, the proposition for CBC as the ultimate filter is not without merit. It could at least ensure a minimum standard for legal practitioner. However, the Bar Council and LPQB should strongly engage with and work together with the law faculties of public universities in enhancing the teaching and learning of the professional papers as well as promulgate a viable proposal structure for CBC. The current 2012 CBC proposal, which do away with the Professional Year for local law schools which has a 4-year programme would also signify that the CBC does not trespass into the realm of the academic institutions. While the law schools may argue that initially the CBC structure was inconsiderate of their 4-year academic structure, it have somewhat been resolved by the current proposal. Thus, the law schools cannot dictate the professional body to determine its admission requirement as well as its efforts to improve the quality of the legal practitioners, especially when such efforts do not trespass into the tuft of the academic local institutions. Even surveys on the prospective employers as well as the current prospective graduates and academician has somewhat agree that the admission to the legal profession should be re-structured to enhance the quality of legal practitioners. However, proper considerations should be made in the following aspects:

- Academic and Professional Education.
- The Standard of Professional Training.
- The Training Providers.
- The Regulatory System.
- Financial Impact.

The academic and professional education should flow in a single stream towards the profession. It cannot and should not be administered separately. The turmoil of separate regulation between higher education provider and the professional body can be seen in the recognition process of the law programme for the new public law schools, wherein the requirement between the higher education provider and the professional body seems distinct

and do not justify a separate evaluation exercise between the accreditation process and the recognition process. The curriculum offered by the public law schools should meet the requirements of MQA and the Education Ministry, which employs the needs and standards set clearly by the professional body. Only law degree, which fulfils this element should be recognised.

The enforcement of standard by MQA or the professional body should be conducted through audit on the Institution and the law schools would encompass the compliance of standard required by MQA, the Education Ministry and the professional in one single exercise rather than repetitious audits of the same nature. In short, the authority should work hand in hand to ensure that the law schools curriculum and delivery has achieved the standards required, rather than mere downplay of the local institutions by the professional body.

The aim and objectives of CBC is to enhance standards of the legal practitioner. However, the standard must be properly indicated and achievable. It cannot be dictated by the whims and fancies of certain quarters of who claims to be experts in the field. The CBC structure must set at the core on what is required by way of professional training. For example, in Australia there is the National Competency Standards. In order to set the standard for it to be achievable, it could not be relied on a particular body. It should be done in a concerted effort by all the stakeholders and the standards will then be adopted and streamlined by all the training providers.

For the training providers, the issue is pertaining to the selection of the provider and how the providers can ensure that their training achieve the required standard. Thus, an evaluation or assessment method must be created rather than letting it flourish in the wild. Then, there is also the structure of CBC curriculum and methodologies to be used. If CLP failed than CBC must succeed. Thus, the high failure rate in CLP should not continue in CBC in grounds that proper training has been given prior to any examinations under the CBC. High failure rate in CBC does not equate to low quality of the graduates, but can also imply the failure of the training providers. It should be noted that CLP is examination orientated while CBC is all-encompassing course with some examination assessment. In order to fully achieve the aim to be single entry into the profession and the maintain a minimum standard for legal practitioner, the best would be to have a single independent institution for that purpose, though it translate to higher expenditure to create that institution. There was a proposal for a Law Academy in Malaysia could be use the spearhead the CBC agenda.

This independent institution could also become a new regulatory body to govern and maintain CBC structure. Otherwise, LPQB could be developed to be the regulatory body for that purpose to administer the standards. In order to streamline nation policy and the legal profession, the government should bear the responsibility to set up the regulatory body and institution. Thus, the funding could come partly from the government coffers to ensure that no expenses spared for enhancing quality of the legal practitioners. In turn, quality lawyers ensure that law and order of the nation is well preserved.

However, from the students' point of view, the issue is whether CBC is fair, accessible and equitable. If it is too costly, the legal profession would be the luxury of wealthier family. This would definitely be against national policy to open up the profession to all irrespective of financial background and must be based solely on merits. Thus, the enrolment fees should not be exorbitant to curtail admission by graduates from low-income group.

In an effort to ensure the delivery of effective professional training at public law schools, the Bar Council should consider allowing law academics to also practice as advocates and solicitors, by amending section 30 of the Legal Profession Act 1976. This approach has been adopted by many countries such as Indonesia and Turkey and has enabled the active infusion of practical legal skills in the legal education curriculum at all public universities. This suggestion is also in accordance with the aspiration of the establishment of the National Legal Aid Fund to enable academic staff of public universities to represent their legal aid clients in court.

9. CONCLUSION

The CBC is focused primarily on the professional practice skills to ensure that new legal practitioners is equipped with vocational skills required as a legal practitioners in their first 2 years of practice. Proponent for CBC maintains that it could ensure a minimum standard of legal professionals rather the current disparity between existing between one practitioner and another. However, in order CBC to achieve its true purpose, many aspects have to be considered and analyze thoroughly. The standards, the evaluation, financial factors and the selection of the training providers are among the issues that need to be settled for CBC to be successful than simply inheriting the problem and deficiencies of CLP. Again, it should be warned that although CBC promulgate a single course and examination for admission to the legal profession, ultimately the course is just a practical training course based on fictitious legal scenarios and may not necessarily equip law graduates with the very minimum skills needed to survive as an independent albeit employed practitioner. That, to a larger extent, is provided for by pupillage and experience gained throughout the legal career.

4th International Conference on New Horizons in Education

The personality of an ethical educational teacher

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Abstract

We attempt to characterize the personality of ethics' teacher in this submitted contribution. The only real wealth of a person is his or her own personality. But at the same time there's nothing more complicated than a human personality. Only a person with a full-value can tutor other persons with a full- value. Thus, it seems necessary that every teacher of ethics should be a mature, authentic, creative, responsible, universal and complete personality. (Kosová, 1995).

Keywords: personality, teacher, ethics

1. INTRODUCTION

Having become a teacher also bears the task of being a carrier of educational ideas and ideals of education, being a personality in a first place, which in the true meaning can not be trained nor learned. Having consider all that, only the one can become a good teacher, who is able to withstand a constant self-education and self-development and is capable of empathizing with all the problems of human existence, who can self-study and raise a question of whether he is competent enough to foster up what he in fact requests of others. (Elevation 1994) The subject of Ethics is just the subject that actually fully allows us to do that. The prime intention of ethics education is to develop a pro-social personality, whose action is characterized by a good conduct. According to P. Fridrichová "The role of Ethics is to contribute to the education of personality, in which all positive values such as humanity, freedom, responsibility, tolerance, authenticity, initiative, diligence and fairness are fully integrated. These values, the corner stones of ethical education are in compliance with the ideals defined in the National Programme of Education and to these all remaining lower hierarchical objectives should subject to these values." (2012, p.9)

However, the general objectives are elaborated in more comprehensive manner and portray broader scale of values, not just the goodness alone in a mankind. The purpose of ethics is to educate oneself by a national education program of Slovakia and it's defined as follows:

- has its own identity, is her own self while this identity also includes the pro-social orientation, has a positive attitude towards life and people associated with a healthy criticism, where its behavior is determined by personal believes and interiorized ethical standards, resulting in universal solidarity and justice, and this is why its social pressure is free to some extent

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- attains a mature moral judgment relying on generalized principles, therefore is capable of an appropriate reaction when encountering a problematic situations
- characterized by relation of the right mindset and appropriate actions in accordance with its fundamentals, but also with the emotional involvement - consistency between emotions and volition - not acting solely on duties and with the lack of enthusiasm driven by sense of self-pity
- accepts difference in others, fairs their opinions and it is willing to tolerate a fair compromise, which is not in contrary with universal human values
- is willing and able to cooperate and initiate cooperation. (State Education Programme Annex Ethics, 2011, p.3) According to K. D. Ušinskij (1962, p.62) The real education is impossible without an immediate personal impact of educator on a pupil that would actually penetrate the character. Only a personality can have an affect on a process and determination of a personality development where only true character can shape the character. "Teacher in a class of ethics is only a facilitator, so the lesson is actually just supervised." According to B. KOSOVO (2009, p 14). The teacher is fully capable to supervise others if in accordance with oneself, acting as a subject in accordance with the situation of children and himself alone, with the necessity of distance and independent decision-making with the need for reflection and questioning his own actions. The teacher of ethics should have a style of the teacher humanist, which describes B. Kosov (1995, p.53, 54) as follows:

1. Tolerates: feelings, needs, interests and individual differences of students, idiomatic style of learning and behavior of pupils, other opinions than his own, discusses problems, errors and omissions of the student's as well as his own mistakes and errors.
2. Supports: independent thinking and acting of student, finding problems and information, diversity and unconventional solutions to problems, positive approach to a student learning, positive informal relations of students, collaboration between students and reasonable competitiveness and needs of students in terms of self-improvement.
3. Requires: an active conscious discipline and responsibility, own opinion, assessment and self-assessment so that the learner understands the nature of its own activities, so the pupil gets to know himself, cause of their own mistakes and shortcomings and their own and classmates eligibilities.
4. Anticipates and creates conditions for: the success of each student, curiosity and students questions, discussion and open communication and thought-provoking ideas and criticism.
5. Rejects: blind obedience and forced activity, the atmosphere of fear and tension, ridicule and pigeon students satisfied with mediocrity, servility and acting only on the challenge and the view that everything should be clear.

The chosen approach of the Ethics teacher truly forms a personality capable to motivate students towards the educational process by pro-social, empathic and assertive behavior that is characteristic for ethical education. The task of teaching ethics is to promote the personal development of the child / young person characterized by pro-social behavior.

In order to achieve this objective, the teacher of ethics should posses the following competencies:

- Professional
- Moral and ethical
- Educational and psychological
- Didactic and methodological
- Self-development

Based on the analysis of current trends and ethics, the teacher of ethics is understood as a professional who is qualified for theoretically profound and critical analysis of educational phenomena and processes of teaching the subject. This allows him to create educational strategies and procedures in order to achieve the objectives

without practicing manipulation on students and creating optimal conditions for their moral self-development. Along the way, they are able to explain their teaching practices as well as defend them in argumentation, modify and successfully implement and continuously evaluate. (Valica et al, 2011) The teacher is then understood as a reflexive professional who is through permanent-reflection and self-reflection able to confront theory and practice, which leads to the integration of the professional competencies and creation of individual educational theory (implicit and explicit), which significantly affects its pedagogical decisions and actions. The teacher of ethics should fill the content of ethics, which is focused on the attributes needed to be developed in the child so that we can achieve educational goals. These attributes are incorporated in the following basic topics elaborated by R.R.Olivar, these form the foundation of Slovak educational ethics:

1. Open communication
2. Dignity of the human person, self-esteem, positive evaluation of oneself
3. Positive evaluation of others
4. Creativity and initiative
5. Expression of feelings
6. Empathy
7. Assertiveness
8. Realistic and displayed patterns
9. Pro-social behavior (help, gifting, sharing, cooperation, friendship)
10. Comprehensive pro-social behavior

The aim of ethics education as a mandatory elective subject in an earlier stage of secondary education is to:

- provide pupils pulses and positive experiences that support basic trust, autonomy and initiative
- enable them to acquire basic communication skills, basic operations of social behavior, to evaluate oneself and others positively, solve everyday situations in interpersonal relationships in a creative way
- explain students concepts of empathy, assertiveness, cooperation and pro-social (positive social) behavior
- enable pupils to acquire more social skills, for example how to express emotions, empathy, assertive behavior
- enable pupils acquiring basic attitude that makes cultured maturation, teach them to explore themselves, discover their identity, develop self-appreciation
- explore and acquire rights and responsibilities in a family, teach them to express their opinion politely, gradually take responsibility for their decisions, while respecting parents and conduct a constructive dialogue with them
- enable pupils to realize their sexual identity, understand the positive values of friendship, love, marriage and a family, aware of the risks associated with early sexual life, justify basic moral standards, adopt the right attitude to issues related to sexuality
- develop pupils' positive attitudes towards disabled, sick, and other groups of people that need help and understanding
- explain students the basic concepts related to the choice of life goals, worldview, religion, ethics and norms
- enable pupils to understand the basic ethical issues related to economic values, truth and good reputation
- explain students the basic concepts related to the conservation of nature and the environment
- teach students to respect other people's opinions, while remaining themselves, formulate their goals in life, be free from improper inducements, remain free of addictions that degrade and threaten our lives, to develop pupils' awareness of their own dignity and worth of the human being, and in this sense being able to evaluate the effects of mass media critically, and critically educate the viewer. (National Educational Programme, Annex Ethics, 2011, p.4)

The outcome of ethical objectives is that ethics teacher should be as stated by B. Kudláčová (2003) a mature personality, educator and also a professional who is educated by a sufficient knowledge in their field and is constantly broadening ones knowledge, is able to support ethical views rationally, able to lead argumentation and convey it to students clearly. Relationship of an ethics teacher and student should be based on mutual understanding, trust, respect, acceptance and tolerance. The ethics teacher should be empathetic, creative, tolerant, assertive, pro-social and should be a role model for the surroundings, especially to his students. Based on these assumptions alone and personal qualities he would be able to manage and fulfill the objectives of ethics, and as a consequence raise a good man by supporting and developing basic moral values in students.

2. Conclusion

We can't refute the fact that the personality of the ethics teacher is significantly determined by actual learning process of students, their way of thinking, educational results, relations in the classroom, and the success of young people in life. As we have already described the personality of the ethics teacher, he & she greatly affects the educational process in the ethics classes. The aim of this subject is to educate pro-social personality - a person who is characterized by autonomy in thoughts and feelings, personal integrity, consistency between emotion and volition, clear ethical standards and principles that is able to control his life and actions in it. By making a choice in terms of willingness of the ethics teacher to educate himself further and try to solve problems with pupils brought on by educational process, regularly reflect on their lessons, plan them in advance and at the same time take into consideration pupils' needs and guide them, ensures that the subject of ethics will become a subject which fully meets the requirements of the general objectives.

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The place and the importance of history learning on architectural education

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Abstract

Before writing or reading any text on history or related with history, it should be known clearly that past and history are not referring to mainly the same thing. What is past? And what is history? The answers of these questions should be known clearly to not only to understand the developments on architecture, but also to design any basic thing. Thus, the importance of history and the meaning of history writing on architecture should be known by architects and architecture students before designing. It is also important to understand that each of us has a historicity point of view on our life as designers or architects. Thus, in this point of view we design our new creations by using images, as they are some data on our historicism. Thus, the paper will not only have answers of these questions above, but also it will describe how we can design as architects by learning history on architecture and the place and the importance of history learning on architecture.

Keywords: history, past, historicity, historicism, architecture

1. INTRODUCTION

As a result of rapid search through digital technology, one of the general definitions of expression of history is "as a research area, a knowledge depending on human records, and on written and verbal sources" or "a knowledge at which known past events are expressed". Most popular and most widely used one, on the other hand, is "that is depended on cause and effect relationship". The past, embraces every moment prior to the present and the history, needs to be read with consciousness and time perception within the existence of present and past. Thus, past is obviously different than the history. History or history writing is to reproduce the past. History is a construction; a constructed expression, a form of past scenario written by the owner of the text; by the author. It is an editing. What happened actually in the past is not and cannot known as the way it has lived. As believed, visualized and been at ease as it is, history is in fact edited, constructed and seen by different eyes through different "glasses". History is an editing area. Although the duty of a historian is to convey the past to the future generation impartially and directly, all written and verbal conversion will be molded with the history of personality of that historian, in other words, writing and an editing of history reflecting personality of the historian will emerge. Of course, there is no an unbiased historian. That is impossible. Nothing is expressed in an absolute objectivity and neutrality.

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2. What Is The History?

The history is a definition through “the glasses” of the one, who describes it. Because the mind of a human being cannot think on an absolute gap, the history can be written into a construction of a World, which was transmitted by judgement. Thus, there is never an objective history fiction. The history can only be written through the theme, which was transferred by its’ author. There cannot be any definition, which is not supported by its’ author; although there is always an assumption of it. Every definition is belonged to its’ author, as long as it carries “the name” of him and its’ author is attributed by whatever he writes. Without any doubt, it is like a vicious circle; all of the definitions form the author.

The most beloved type of history telling is giving a definition out of biological analogy; bureaucratically structure of the government is tried to be read out of the living environment network, and thus, there are some definitions, which have vital periods such as foundation, growth and fall. Through the concept of those ideas and definitions of the history writing, possibilities of making sense of various deductions of the bureaucratically structure, the political relationships, socio-cultural activities and so on so forth can be caught. All of those definitions of the history are like small pieces of a big “puzzle” and the history is only lived into the fictional writing through the “glasses” of its’ authors. The history authors are writing the history as the subjects of the moment and their readers can have their own subtractions as the subjects of the moment of the reading activity through their fictional definitions. Every definition has its own problematic. Always, it is waited to have only one absolute truth from the history. However, there is never only one. There is never only one absolute truth, and it has not been. Because there is never existed an absolute neutrality. Thus, the history writing cannot have a neutral point of view. It is not right to expect to have a history, which has absolute neutrality. Thus, history writing of staying in a vicious circle, and having without any judgement, can not be read, explained and can not be solved without having any judgement, as well.

Because history writers cannot live on an absolute individuality, they can put their signatures on the parallel of their social identity. They know their own act/ role. These roles are written according to the corners on where they stand. Without any doubt, this situation is an epistemological problem.

3. What Does Past Include?

The truth is that the field, which is called as the past cannot be written with all of its’ hint points and already existed data. The data of the history, different words of the other history writers, the borders of what the powerful have on his hands are structured over again, from the beginning and by given new definitions.

Thus, why all of the architects need to know the past? Without any doubt, architecture cannot be made without knowing this praxis as an architect, without standing inside the borders of this praxis. Not only of being a human, but also the fact of making architecture are historical, they are insisted on a historical platform, thus, history of architecture is read and touch during architectural education. To seen and understand of the historical process of

the architectural praxis, history of architecture should be learned. In a strange way, this situation has a big obscurity. There is not a certain truth; there is not an eternal truth. Everything and also we are all existed in a historicity. Nothing is constant and fixed and stable. Everything forms the physical environment is historical. Everything that has made, that has created and designed are historical and they can find an existence of a specific historicity. Nothing, even functionality is trustable. It has existence trough its' historicity. It has a kind of suitability and harmony according to the space, time and its' socio-cultural community. Every excepted, found and situated idea is changing continuously and thus, there are infinite numbers of opportunities to open wide view on discussions.

4. History Learning On Architectural Education

Architecture lives on a world like which is defined above. Especially, all of the buildings that were designed and constructed have been created like this during last 200 years; they are the products of discussions, answers of asking of design questions and architectural critical. However, architectural designing can be only done by this and that discussions and critics. The truth is not on the products, but on the ideas and believing of the ones by whom they are created. The truth is on the subject, about whom the speech is going on. All of the existed narratives and texts are right inside their borders; these narratives and texts can not be continuously live as the life of other than their own truths on outside of the limited and defined borders. They are all about fictions. They can be real and existed only on the atmosphere of the space, where are becoming fictional. There is not an eternal result, which is an absolute truth. The effort of trying to make scientifically architecture is wrong. It is for sure that, the absolute socio-historical process, on where architects want to be located is not existed. Because of this, the history of architecture is touch during the architectural education. Not only the question of which socio-historical processes are existed, but also how the buildings and their architects can be attached to them and with what they are interacted or with what they have been fought during the creation process, are important to be asked here. The answers of these questions are forming the historical identities of the architects, their design paradigms, the needing and wills of the architects as well. The architectural identities of architects, their architectural problematic, and the solutions can be only formed like this. The original signatures of architects can be given only by this way.



Fig. 1. (a) the valley of Gizah; (b) the transparent glass pyramid of Louvre Museum by Im Pei.



Fig. 2. (a) A Greek Temple; (b) A Villa by Palladio, Renaissance Period; (c) White House.



Fig. 3. (a) Supermercado de Colon, Valencia; (b) Supermercado de Santa Caterina, Barcelona, by Enric Miralles.



Fig. 4. (a) a hieroglyph wall from USA; (b) a traditional hieroglyph wall from Egypt.

5. Conclusion

It is a common idea that examples of World Contemporary Architecture generally have references from history, such as the transparent glass pyramid of the Museum of Louvre by Im Pei, has a connection with antique pyramids of Valley of Gizah; the front facades of Palladio's villa and White House have references from the antique Greek Temple, etc. almost every new architectural design has a historical connection or references, which shows us that without having a powerful historical background it is almost impossible to design a new architectural form.

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4th International Conference on New Horizons in Education

The pronunciation problems for Turkish learners in articulating of the diphthongs in English learning.

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Abstract

In our modern and digital world, learning English at the upper-intermediate and the advanced levels is inevitable necessity for everybody to learn in terms of every skill, such as, speaking, listening, reading, and writing. Pronunciation, in particular, has been neglected in English teaching at the primary, secondary, and high state schools in Turkey. Neither teachers who teach English nor students who are willing to learn English give more importance to pronunciation owing to different articulations that are unavailable in Turkish language. This issue predominantly arises from the completely different language families to which Turkish and English languages are members. The main articulation problems that Turkish learners encounter are diphthongs, the voiced, and the unvoiced "th" sounds. In the syntax structure of Turkish language, two vowels are hardly ever in juxtaposition. So, Turkish learners are used to articulating the word forming monophthong sound because of the structure of Turkish language.

The pronunciation problems for Turkish learners are not entirely limited to either the diphthongs or the voiced and unvoiced "th" sounds. In addition to those, the great majority of Turkish teachers teaching English at the state secondary, and high schools are beyond giving importance to the listening ability in which the consonant assimilation plays a significant role for learners to comprehend the sounds that they encounter in listening activities. As for one of the examples of how we can overcome the issue of some diphthongs' articulation, we can put our sign finger to the front of our lips before we start the articulation of the diphthongs such as "go" or "home," the lips should push the finger forward during the articulation of "go" or "home." Otherwise, it means that it is not the accurate articulation for the sounds of "go" and "home," as two examples of the diphthongs.

I am going to put forward the issues of diphthongs in English for Turkish learners and present the ways, and techniques for the students in my classroom that they put the techniques and the ways that are taught into practice to overcome the articulation problems of the diphthongs by the power point presentation.

Keywords: Diphthongs; articulation; pronunciation; Turkish learners; Language families.

1). Introduction

In our modern, digital world, having fluent English is a necessity for everybody from every point of view, such as science, technology, international trade, diplomacy, medicine and so on. Having a competence in English grammar is no longer sufficient for someone who wants to communicate effectively in English, they also need to use skills particularly listening and speaking in an integrated fashion.

In the Turkish education system, speaking (accurate pronunciation, in particular) and listening have been consistently neglected by not only Turkish teachers who teach English but also Turkish students at the state primary, secondary, and high schools. Most Turkish students reach an intermediate level in English Grammar .

However, Upper intermediate and Advanced levels of English are generally thought to be a step too far for Turkish learners to attain owing to problems pronouncing specific vowels and consonants that are not available in Turkish language.

1.1) The difficulties that Turkish learners encounter in English learning.

Some vowels and consonants that are unavailable in Turkish language create articulation problems, which form barriers for Turkish learners to overcome easily. These are generally the voiced dental fricative “ð” and the Voiceless dental fricative “θ” sounds. In addition to those, some diphthongs in English language also create some difficulties in accurate pronunciation. The negligence and not giving importance to accurate pronunciation, in particular, in English lessons by teachers who teach English bring about the fossilization in pronunciation of English.

The reasons why Turkish learners at the state primary, secondary, and high schools are not good at articulating “th” sounds and some diphthongs in terms of pronunciation are because the classroom size in English lessons is more than thirty students, and because there is scarcely any skill lesson but grammar. First of all, the essential problem that cannot be ignored is that Turkish language is not in the same language family as English.

1.2) The analysis of the Turkish learners’ cultural differences and problems of articulation in the process of English learning.

In the field of language education, there are four basic skills that are essential in the process of teaching and learning. These are: reading, writing, listening, and speaking. In many foreign languages teaching methodology publications, all these skills are integrated into one particular learning context. That is the cultural aspect of the target language. Kramsch (1993) was among the first to argue that culture is the fifth skill in teaching. This skill is evident at every step of the process not only in language teaching but also in other fields of study. According to Ommagion (1993) teaching culture is considered important by most teachers, but it has remained “insubstantial and sporadic in most language classrooms.” Few Turkish teachers who teach English at the state schools give importance to the culture of the target language. The importance that is given to Grammar at the state secondary and high schools’ English classrooms shadows the four basic skills that are essential in the process of teaching and learning. The pronunciation and the culture of the target language take its share from the eclipse of negligence as well. A few idealist teachers who give importance to the articulation and pronunciation of the target language lose the belief of being good at pronunciation because of reluctant learners and insufficient curriculum of English teaching. Even if a teacher of English is willing to identify the pronunciation problems, he / she does not know any technique, which helps learners overcome the fossilization in the pronunciation of English. The most of Turkish learners have difficulty in articulating the voiced and the unvoiced “th” sound and the back sounds of the diphthongs. It is necessary for learners to learn English culture by hearing some examples from their teachers of English when they lose their concentration on the lesson of English. Some interesting examples for culture of the target language may be given to the learners at least for starting the first lesson of the week with the aim to attract the students’ attention to the lesson.

In my classroom at the School of foreign languages, Uludag University, the students at the pre-intermediate level practiced the sounds of the eight diphthongs under my control. I noticed that most of them found the pronunciation of the diphthongs difficult to articulate. The articulation of the frontal sounds of the Diphthongs is easier for them than that of back sounds of the ones in English learning. In order to overcome this issue, I practiced the table 2 and the table 3 so that they could overcome the articulation and pronunciation problems. As a result, by means of the techniques which take place in appendix section put into practice with the aim to make them gain the habit of good pronunciation,

So long as the learners find a foreign language interesting and necessary in terms of its culture, they try to concentrate on the subject that is taught during the lesson.

2) Tables:

THE TABLES THAT HELP THE LEARNERS PRACTICE THE ARTICULATION OF THE DIPHTHONGS.

Table 1)The phonetic symbols of the Diphthongs (eight diphthongs in English language

Table 2) The steps to be followed by learners in learning the sounds of the diphthongs to attain the accurate pronunciation.

Table 3) The key table for the pronunciation of the diphthongs.

Turkish students have difficulty in learning the articulation and pronunciation of English sounds because there is no such a sound of articulation in the Turkish language. These sounds are generally the voiced and unvoiced “th” sounds and the diphthongs. Particularly, some diphthongs such as in the articulation of “Go,” “Home,” “Cow,” in English language create certain difficulties for Turkish learners because inadequacy of listening comprehension in English lessons at the state secondary and high schools affect the use of English speaking negatively. 6th, 7th, and 8th sounds are not easy for Turkish learners to articulate and pronounce easily. In this presentation, I have given a place to the presentation of the diphthongs. The detailed explanations of the diphthongs in which the positions of the tongue during the articulation of the sounds are explained about how Turkish learners articulate and pronounce those sounds. The aim of this presentation is to propound the diphthongs that are not available in Turkish language, and their articulation problems in terms of Turkish learners. In this presentation, I am going to emphasize the use of the diphthongs and their difficulties for Turkish learners, and point out how we can overcome the issues that Turkish learners encounter by the help of oral practices, which will help them learn the correct articulation of the diphthongs.

Is it possible for Turkish learners who are accustomed to having inaccurate articulation to overcome the problems of the pronunciation in English by breaking fossilization through exercises that will make students gain confidence?

Can anyone learn any foreign language without giving importance to the skills (Reading, Writing, Speaking, Listening)? Can learning only grammar of English provide new learners with fluent English in the international area? The Turkish students in my classroom generally have difficulty in articulating the sounds, in particular, are unavailable in Turkish language even if they try to produce the pronunciation of the diphthongs. A few techniques to be used easily by everybody, if you are unfamiliar with the sounds such as the voiced and the

unvoiced “TH” sounds and the diphthongs, can lead you to the desired, accurate pronunciation level. This is “The sign finger technique “. After you watch the shape of the teacher who shows you how you are going to articulate and pronounce the sounds of the diphthongs, you can imitate the way of articulating of, the diphthongs under the control of the teacher in the classroom.

If you fail in articulating of the sounds that you are supposed to do so, do not let you have the feeling that you are far beyond doing so. You should encourage you to do the best sooner or later. Perhaps, you can articulate those sounds separately. Yet, the ability that you have just gained from the articulation practices might turn to the inability while you are using a full sentence in which more than one diphthong is evident. Before repeating the same sentence, you should put your sign finger the frontal part of your lips. When your lips push your sign finger out during the articulation of the diphthongs such as ə:ʊ, əʊ, ɜ:, ɔ: sounds, e.g. ”go “, “home”, “toast”, “ I go home when I finish my work.” Or “ I saw a girl eating a toast at home.” So long as you repeat that technique when you make practices in the articulation of the diphthongs, you can gain the habit to articulate accurately by yourself. Having accurate and desired pronunciation in English speaking enables you to reach to the correct pronunciation which gives you an opportunity to speak to English-speaking people interactively.

3.0) The essential problem that cannot be ignored is that Turkish language is not in the same language as English language

(*) World languages are divided into three groups with regard to the sentence structures.(Ceritoglu,M)

3.1) *The Isolating languages:*

In monosyllabic languages, every word is made up of one syllable. The word is in the form of root. No conjugation is available. The Sentence structure is formed by using the uninflected verbs. The meaning of the sentences is understood in accordance with conjoining of the words. In speaking, very rich stress /emphasis system is used to distinguish the words that resemble one another. (Chinese, Tibetan language)

3.2) *The Inflexional languages:*

In these languages, word stems show variation while lexicalising new word, and the word stem becomes unrecognizable. The particles can take place in the word as prefix, infix, and suffix. The main voices in the word stem remain the same while articulating a new sound.

(Hindu-European languages take place in this language family.)

3.3) *The Agglutinating languages*

In these languages, while lexicalising new word or a verb and noun inflection, word stem remains recognizable. Some particles, as a prefix or a suffix, are used to form a new word.

(Ural-Altaic languages are in this group.)

Turkish is an agglutinating language and a member of the Altaic language family.

4.0) Why do most learners find diphthongs difficult at first?

There are eight English diphthongs altogether. To make diphthongs, your tongue, lips (and your jaw on occasions!) have to move. Sometimes the journey your tongue makes is short and very controlled; in some of the diphthongs, It has to move a long distance in your mouth, involving a lot of jaw movements too.

Learners find diphthongs difficult because producing them is a motor skill (like body building!) which has to be practised in order to obtain a good result. You cannot succeed in English pronunciation by understanding alone. The muscles you have to train to make English diphthongs are unlikely to be identical to those you use in production of vowel sounds in your first language.

5.0) Presenting diphthongs- similarities and differences:

The English language has twenty vowel sounds. To see all the English sounds, The first 12 of the English vowel sounds are MONOPHTHONGS. The tongue stays at ONE fixed location in the mouth to produce each MONOPHTHONG Sounds 13 to 20, the next eight English vowel sounds, are DIPHTHONGS. They present greater difficulty to people learning English because the tongue travels between two fixed locations. It is important to know exactly what to do with the speech organs (i.e. the position of the tongue, lip-shape & tension, size of mouth opening) in each location and the manner and direction of the movement. (Power,Ted)

Turkish learners generally have difficulty in articulating the vowel phonemes in which seven monophthongs and five diphthongs are evident and the consonant phonemes in which the voiced and unvoiced “th” sounds are evident. The articulations of monophthongs such as pat; ago; car; too; luck; meat; door; and of the diphthongs such as beer; bear; tour; go; cow, and the articulation of the consonant phonemes such as the voiced and the unvoiced “th” sounds such as that; and think create unwillingness for most of Turkish learners to learn English language at the state secondary and high schools.

6.0) How can one easily distinguish between monophthong and diphthong sounds?

A monophthong is a single, pure vowel sound. While pronouncing a monophthong, the positions of the mouth and tongue remain fixed. Because of that peculiarities of the monothongs, Turkish learners do not have any difficulty in articulating the monothongs On the other hand, the diphthongs are difficult for Turkish learners to articulate at first especially, when they start to learn English. A diphthong is a vowel sound that changes from the beginning to the end, while still being pronounced in the space of a single syllable. While pronouncing a diphthong, the positions of the mouth and tongue change, or slide, from the beginning to the end of the vowel sound. Both English and Italian contain both monophthongs and diphthongs. However native English speakers are often unaware of the distinction between these two types of vowel sounds because English spelling usually doesn't give you very obvious clues about which type of sound is used in a particular word. In fact, in some

instances the exact same word is pronounced with a monophthong in one variety of English and a diphthong in another. In contrast, Italian makes a very clear distinction between monophthongs and diphthongs. Monophthongs are always represented by a single written vowel and diphthongs are always represented by two written vowels. In order to develop an accurate Italian pronunciation it's vital that you understand the difference between monophthongs and diphthongs, and that you are able to always use the correct type of vowel sound. There are some examples that demonstrate the sound of monophthongs and that of the diphthongs. (Power, Ted; Eng.Lang.)

Examples:

æ: man

æɪ: main

ɪ: bit

ɑɪ:

bite.

ɔ: lot

əʊ: low

o: tall

ɔɪ: toy .

7.0) Conclusion and comment:

One of the main reasons why Turkish students are not good at learning English at the state primary, secondary, and high schools is because they are hardly ever taught the articulation and the pronunciation of English. The importance is mostly given to the teaching of grammar rather than the skill lessons. No matter how well you are in learning grammar of English, it is impossible for them to enrol their levels from intermediate to upper-intermediate or advanced level. Having competence in comprehending the reading, writing, listening, and speaking skills supported by a fluent pronunciation of English accelerates the desire to learn English in such a way as to communicate with people who speak English well in every field.

Comment:

As long as the target language's culture emphasised as the fifth skill (Ommagion,1993) is neglected by the non-native English teachers or the native ones , at the state schools in Turkey, it is not easy for the learners to learn English In order to emphasize the difference between English and Turkish cultures, an example relating to the cultural differences may be given in the.warm up and motivation activities before starting the lesson.

Here is an example for the cultural differences: Student (S), Teacher (T) in the dialog.

Original short films or videos that explain the cultural differences including limited a few minutes during the lesson prepare the ground for the Turkish learners to not only learn how they attain the desired articulation but also focus on the lessons even if they sometimes fail in following the lesson. Those activities accelerate students' performance of learning English Using correct articulation and pronunciation means that you have caught a chance to communicate with people all over the world. Those activities help learners make easy to articulate and pronounce the sounds such as "th ",diphthongs, and the assimilation in consonants, both visually and aurally.

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Appendix G.

A.1. Table 1: The phonetic symbols of the Diphthongs: (Power, Ted)

1) /eɪ/	2) /aɪ/	3) /ɔɪ/
4) /ɪə/	5) /eə/	6) /ʊə/
7) /əʊ/	8) /aʊ/	

A.2. Table 2: The steps to be followed by the learners in learning the sounds of the diphthongs :

Your tongue needs to start off near the middle of your mouth, with your mouth open. Then your tongue needs to move back and up slightly at the same time as you close your lips. Your lips also need to be 'rounded' slightly.

Here is a technique you can use to feel the difference in different mouth shapes:

- Start by putting your finger on your lips like you are saying 'shhhhh' and telling someone to be quiet. (Perhaps you don't make this gesture in your culture, or it is rude to do so. Actually, it can be a little rude in European cultures also, so you need to use it with care. You're most likely to see it among audiences at live shows, at the movie theatre, or in the library if someone is rudely talking.)
- Hold your finger still don't move it when your lips move. Now make an 'ee' sound. You should feel your lips come back to be flat against your teeth. Your finger should now not be touching your lips.
- Now make an 'au' sound sticking your lips out. You should feel your finger be pushed out, away from your mouth. This is what 'rounding' your lips means.

Now say the word 'goat' with your finger touching your lips, and check that your lips become rounded at the end of the vowel sound.

A.3. Table 3: The key table for the pronunciation of the Diphthongs

[The diphthongs that Turkish learners have mostly difficulty in articulating are the sounds, such as (long) ə:ʊ (reduced) əʊ. The exercises given below aim to practice those sounds so that the students in the classroom can get used to articulating those sounds .

Long [ə:ʊ - go, toe, home, road, pose]

Reduced [əʊ - goat, rope, oak, post, both]

Compare [ə:ʊ , əʊ - robe, rope ; toes, toast ; grows, gross ;

Road, wrote ; cold, colt.]

əʊ /, / ɜ:/- foe, fur ; own, earn; goal, girl; oath, earth;

Coat, curt, foam, firm.

/ əʊ, ɔ: /- so, saw ; pose, pause ; bold, bald ; load, lord;

Boat, bought ; choke, chalk

/ əʊ /, / ɜ:/, / ɔ: /-foe, fur, four ; bone , burn , born ;

Woke, work, walk ; coat, curt , caught; (Power)

Coal, curl , call.

The bibliography of the writer

I have been teaching English as an ELT lecturer at English department, School of Foreign Languages since 1985, when I graduated from the department of English language at Uludağ University, Bursa. Teaching English is our family business because every individual of my family is predominantly engaged in teaching English at the schools and the university. The lessons that I am responsible for are writing, reading, speaking, listening, and international trade English.

As a person who believes in the idea that everybody should refresh himself in his own field every time without considering how old he /she is, I participated in some courses in not only Turkey but also The U.K. Some of them are:

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On the dates of 2nd and 6th of May 2013, My article the pronunciation problems for Turkish learners in articulating of the voiced and unvoiced “ th “ sounds and the techniques of overcoming the difficulties for Turkish learners in English learning.” was accepted by the International Burch University, Sarajevo.

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The quality improvement of the university education

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Abstract

Much of the criticism has been directed to higher education in Slovakia over the decades. It is argued that the current education focuses more on acquiring encyclopaedic knowledge rather than promoting the creativity to develop ability to identify problems. As a result, students are less able to analyse specific situation, to present and evaluate alternative solutions, stand up for their own opinions and use their knowledge in practical applications. The aim of this paper is to point out the possibility to apply an appropriate combination of different teaching methods in order to make corrections in both students learning styles and teachers methods. These applied tools will help us enhance the quality of education and attract the attention to more effective learning at the universities as the imperative of successful preparation of students for both their professional and personal life.

Key words: motivation, learning methods, learning styles, education styles

1. Introduction

University teachers in Slovakia are, more than ever, evaluated according to its assessment of research and publication activities. Demands for publication in prestigious journals and participation at major international conferences are continually increasing for them. On the verge of interest remain their teaching activities. However, paradoxically, just these activities are perceived by the public and students in the first place. Students is much more interested in how the teacher explains a particular topic or draws an attention about this topic, and not what the teacher achieves success in publishing.

2. Motivation

The key elements in the implementation of education are the students themselves. Their motivational readiness to learn depends inter alia on the emotional state of mind, cultural and educational backgrounds. Emotional status and disposition also have an effect on what will be their approach to learning. Motive is an internal momentum that causes a change in human's behaviour and to leads to his needs.

There are a lot of motivational factors, of course. Interest in the subject depends on the content and form of teaching, nature of teachers and students and of other factors. Everything is determined by the time possibilities arising from the timetable, the number of students in a class, surround possibilities, teacher's readiness and alike.

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For students is motivating when the teacher at the beginning of the semester informs about content and goals of the course, and also gives them space to comment about what they interested in, respectively what another topic related to the content of the course would be welcomed and what are their expectations. This is useful information for teachers about what could be added to the content part to meet the requirements and the interest of teachers and students, too.

At universities, unfortunately, studying also those students who do not wish to periodically prepare and they decided to study only because this wished their parents or because of their field of study is the low interest from other students. The idea of obtaining a university degree is great, but interest in the study and willingness to make an effort - it is negligible for some of students. What to do in such cases? Is it possible to motivate some young people with no interest in anything?

Motivation increases the amount of effort and energy that learners expend in activities directly related to their needs and goals (Csikszentmihalyi & Nakamura, 1989). It determines whether they pursue a task enthusiastically and wholeheartedly or apathetically and lackadaisically.

Motivation increases initiation of and persistence in activities. Students are more likely to begin a task they actually want to do. They are also more likely to continue working at it until they've completed it, even if they are occasionally interrupted or frustrated in the process Motivation increases students' time on task and it is an important factor affecting their learning. (Larson, 2000)

Motivation affects cognitive processes. Motivation affects what learners pay attention to and how effectively they process it. For instance, motivated learners often make a concerted effort to truly understand classroom material—to learn it meaningfully—and consider how they might use it in their own lives. (Ormrod, 2006)

We can say that motivation is the force that drives us to carry out activities. We are motivated when we feel like doing something and we are able to sustain the effort required during the time required to achieve the objective we set ourselves. Motivation should be considered carefully by teachers, trying to mobilize the capabilities and potential of each student for academic success. (Ferreira, Cardoso & Abrantes, 2011)

Educational science defined two basic types of motivation: intrinsic and extrinsic, that have a potentially different consequences on learning (Standage, Duda, & Ntoumanis, 2005). These are based on self-determination theory that considers humans to actively seek optimal challenges and new experiences to master and integrate. The most self-determined type of motivation is intrinsic motivation. Intrinsic motivation refers to engagement in activities for their own sake, namely for the feelings of pleasure, interest, and satisfaction that derive directly from participation. When intrinsically motivated, individuals are fully self-regulated, engage in activities out of interest, experience a sense of volition, and function without the aid of external rewards and constraints (Deci & Ryan, 1985).

Teachers should also create an active learning environment that enhances students' perceived autonomy and competence, providing students with choices and opportunities for self-directed learning, and planning learning activities that might increase their feeling of mastery. In fact, intrinsic motivation was shown to be a factor of great importance that can lead to higher perceived learning in the course. (Ferreira, Cardoso & Abrantes, 2011)

Motivation of students varies depending on which phase of the cycle of motivation they are. The role of the teacher is to estimate this and adjust the communication strategy and interventions during the learning process.

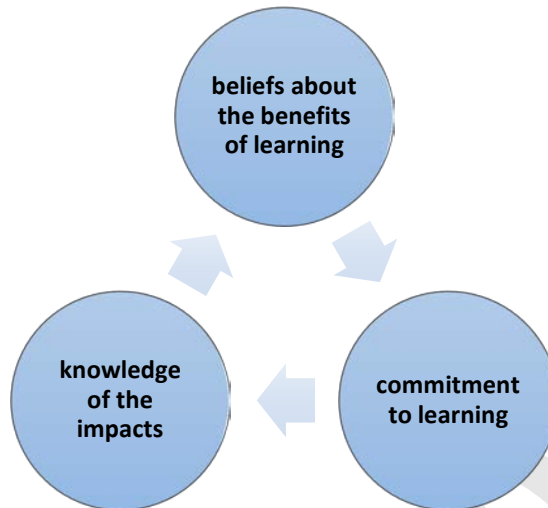


Fig.1. Cycle of motivation

It is very useful at the beginning of the semester to establish clear rules of communication, of granting credits, of passing an examination - clear rules of the game that both sides will actually follow. If student knows it is necessary at university to study apart from fun, then it's up to him whether the rules adopted or not.

According to feedback from students shows that much easier and more interesting for them is the theme which application in practice is clear. It is therefore appropriate to close the lecture with question: "What do you think, where you use it?", "What is it good for?". If students find the answer yourself, they better remember the subject matter of lecture, but if you can not imagine a practical use, it is necessary to tell them what it is.

It is interestingly, the students better and more open to receiving information from a teacher who has had some experience outside of education, or working on projects in practice.

3. The students and their learning styles

Everyone has their own learning style. Some prefer practical exercises and is ready to learn from their mistakes, while others prefer abstract discussion and others prefer to acquire new information and skills that can be transferred to their environment. Kolb, Honey and Mumford (2000) studied the learning styles and they analysed the effects of learning styles. On this basis, Honey and Mumford defined four basic learning styles: activist, reflector, theorist and pragmatist. Profile and preferences for different styles of individuals can be determined by questionnaire and observation of participants in action.

Activists – typical is: “here and now”, gregarious, seek challenge and immediate experience, open-minded, bored with implementation. The activists dominate their immediate experience. They tend to occur in the short-term crises as a fire fighters. They love to take new challenges, but they can be poisoned by the implementation

of long-term activities. Activists learn best, when: there are new experiences, exercises and problems; making a short action immediately and on the spot (management games, team tasks, exercises), where they play a role; there is excitement and drama, things have created momentum and unexpected twists and turns with a variety of activities which need to be tackled. The activists are best dealt with difficult tasks when they are thrown into water.

Reflectors: “stand back”, gather data, ponder and analyze, delay reaching conclusions, listen before speaking, thoughtful. Reflectors are people who stand in the background, thinking and observing people and situations from different viewpoints. They consider different approaches and consequences before moving forward, and thus tend to exhibit caution. They enjoy watching other people in their activities and often sit down in a classroom in the back seat. Reflectors learn best when activities can watch or think about them, they can be on top of things, listen, observe and think (twice measured and cut once) and have adequate time to prepare.

Theorists: think things through in logical steps, assimilate disparate facts into coherent theories, rationally objective, reject subjectivity and flippancy. Theorists concern with the underlying assumptions, principles, theories, models and systems. They appreciate the rationality and logic, they are objective and analytical, not live content with subjective or ascribed. They prefer if you take the rational subject. Theorists learn best when: teaching material is part of a system model or theory, seeing the subject logic structure and a clear purpose, when they have to understand complicated situations and procedures to solution.

Pragmatists: seek and try out new ideas, practical, down-to-earth, enjoy problem solving and decision-making quickly, bored with long discussions. Pragmatists are people who often look for new ideas and like to experiment. They want to try new ideas and knowledge into practice immediately. Pragmatists learn best when: they see a clear link between teaching topic and its practical application; when learning practices that have practical benefits and solutions that are justified and when they can focus on practical problem with a clear end result or product.

Honey and Mumford's extended Kolb's learning cycle with 4 phases (1. having an experience, 2. reflecting on it, 3. drawing their own conclusions, 4. Putting their theory into practice to see what happens) with learning styles, as shown in Fig. 2. Students prefer different methods of learning, depending upon the situation and their experience level, thus they move between the four modes of learning, rather than being dominantly locked into one mode. According to Honey and Mumford's learning cycle, the students can move around the cycle again, jump in any part of the cycle, and then quit when they deem them self as successful.

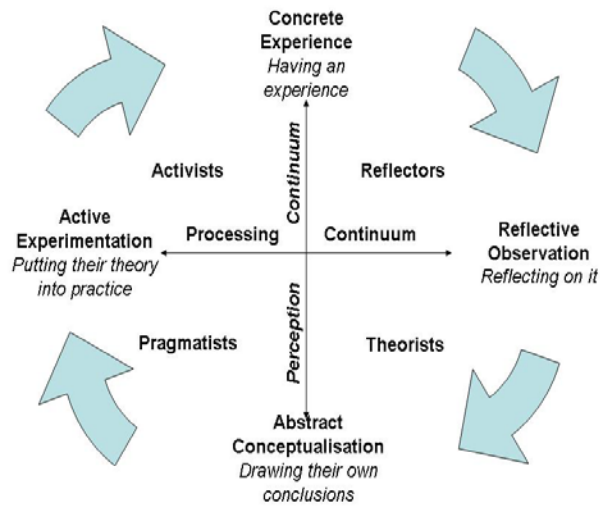


Fig. 2. Honey and Mumford's learning cycle

It is appropriate to understand the learning styles are not as strong personality trait, but rather as the principle of adaptive orientation, which is affected by psychological foundation and specialized nature of the problems that the person is mostly solved. If you manage to synchronized the education styles of teachers with learning styles of students, then educational activities will be useful for students more than they themselves expected. Therefore, it is very beneficial if the teacher uses knowledge of the learning styles of students in the entering group work or other participatory methods of teaching.

4. Methods of learning

Learning methods are an important tool for the implementation of the educational process. Selection and use appropriate methods should reflect the needs of students and respond to current global trends in technological and economic development. Choosing appropriate methods course is determined by various factors such as the number of students in the study group, spatial and technical capabilities, motivating students to learn, professional level and experience of teachers, as well as the quality and availability of teaching resources and supporting textbooks.

The most frequently used methods of teaching at universities are lectures and seminars. Lectures are suitable for the transmission of large quantities of information to large numbers of students, but this is missing the opportunity of interaction. Seminars realised as seminary works or discussions allow the exchange of information and views on certain issues, but the quality of learning depends on the knowledge level and responsible preparing of students.

To achieve higher efficiency of education is necessary to use a combination of several methods. They should also include participative methods. Participative methods assume a high degree of student activities. Their advantage is that they support better remember learned. They represent the current modern methods, which is typical for active practice, experience and direction to the learning of "learning by doing". They are thus based on

the fact that people will learn more if you try to do something, than if they just read or listen to the new information, such as a lecture. Lectures prefer the content of learning, participative methods prefer the procedural aspect. Students can be activated using a combination of various participative methods such as group work, brainstorming, case studies, role playing, management games, and so on. An important part of this method of teaching is to provide feedback and evaluation of activities.

Because participative methods are used for education (training) small groups, universities can be applied mainly in seminars or tutorials. In this way there is a better choice than strengthen knowledge accumulated in lectures and linking them to practical model situations.

Successful managers understand that a reasonably activity in processing information not only accelerate their use, but primarily improves the quality of decision-making. (Chodasová, 2012). And it is this activity which students should be prepared using participative methods.

Development of information and communication technologies enables universities to introduce e-learning. Its advantage is the speed of communication, the opportunity to reach a large number of students at the same time. Students themselves can choose the pace of learning. Students also learn to use this advanced technology, but there is no personal contact between the teacher - student and direct feedback, which may be disadvantageous in teaching some artistically and socially oriented subjects. It also limited the possibility of developing communication and verbal presentation skills themselves. Because students are very happy to work with ICT, e-learning is very useful as a complementary tool to the above methods.

In the context of teaching are often created problems with space, time, time-tables and the like. Many students take more than the studies focus on "chasing credits" and often they are not interested about course itself. However, for all those who are interested in learning, it is important that teachers do experiments and use the innovative, non-traditional teaching methods and practices.

Table 1. Same of the participative methods

METHOD	DESCRIPTION	ADVANTAGES	DISADVANTAGES
BRAINSTORMING	Frequently used method to solve problems. It is necessary to respect the principle of non-criticism, fantasy release, mutual inspiration and equality of participants	<ul style="list-style-type: none"> - speed - the involvement of a large number of students 	<ul style="list-style-type: none"> - necessity of clearly explain the method before using - the need for compliance with the rules of the method
WORKSHOP	Popular method addressed to discuss specific situations and find possible approaches to their positive management.	<ul style="list-style-type: none"> - informality - use in the more numerous group 	<ul style="list-style-type: none"> - requirements for teacher facilitation skills
AQUÁRIUM	One group of students solves the problem, the second group observes and then provides the feedback.	<ul style="list-style-type: none"> - practicing of giving feedback - solid training of the learned skills 	<ul style="list-style-type: none"> - stage fright and nervousness participants who solves the role and who are observed - demanding facilitation by the teacher
ROLE PLAYS	The group gets the script with roles. Students play a selected situation and examine the various possible approaches to solving problems or unforeseen events.	<ul style="list-style-type: none"> - fun - practicing well as unpleasant situations 	<ul style="list-style-type: none"> - games can be considered unrealistic - stage-fright and fear of missed "actor's" performance
SOLUTION TO THE INCIDENT	The method is similar to the case study. Enter the basic facts of the incident and the group decides what further information needs and what needs to answer questions.	<ul style="list-style-type: none"> - exploration real problems without the risk - good simulation of reality 	<ul style="list-style-type: none"> - possible sense the artificial situation by the participants
LABYRINTH	Used induced situation. At some point, students have to solve several tasks simultaneously and options identified consequences of one of the selected options. Proceed in this way until the successful solved task.	<ul style="list-style-type: none"> - it can keep its own pace of work - a high degree of student participation 	<ul style="list-style-type: none"> - time-consuming - difficulty preparation for teachers

5. Teachers and education styles

Preparation, implementation, evaluation of education is often a complex process which places different demands on the teacher. There are a variety of specific skills that are needed for education of large and small groups, and facilitation and preparation of the necessary materials. The status of the teacher in Slovakia is getting worse. This is due to the fact that universities are trying to get as many students due to the established system of financing. But the quality of the teacher is evaluated more on the basis of their scientific activities, participation in grant tasks, obtained grant funding, publication outputs and less on the personal and pedagogical assumptions.

So, on the one hand, there is a school that requires the teacher work out more and more publications. On the other hand, there are students who require a high level of teacher's presentation skills, abilities and art as to attract attention. How teachers implement this, it is a matter of motivation, presentation, education methods used, as well as communication with the student.

The quality of education and students' satisfaction depends primarily on the ability teacher how to explain a theme by the right way (for example, through experience and examples). The teachers in the education process can apply different education styles.

Structuralistic style is characterized by the fulfilment of criteria of teaching and continuous testing of education effectiveness. The teacher in the education process prefers an activity analysis, an accurate planning of teaching, appropriate system, structure and methods. The disadvantage is too much focus on education tools and structure, underestimating the emotional state of students, low flexibility in relation to the learning needs of students. The teacher will teach at any price planned range of subject matter, regardless of whether students understand the topic and have been able to absorb new knowledge.

Functionalist style is based on the principle that people learn best by what they considered to be practical. Education is focused on the problem (task), performance enhancement, recognition and praise. Teachers put students ambitious goals, emphasize their usefulness, but on the other hand, they can sometimes be impatient or insensitive to students who learn slowly.

Humanistic style is typical of those teachers who aim to improve the personality traits. The educational process is focused on building a relationship. Typical is the acceptance, empathy, spontaneity and openness in relation to the participants - students. Weakness of this style can sometimes be weak control of student groups and particularly unclear direction of learning. Students are actively working, but they cannot summarize and evaluate what they learned.

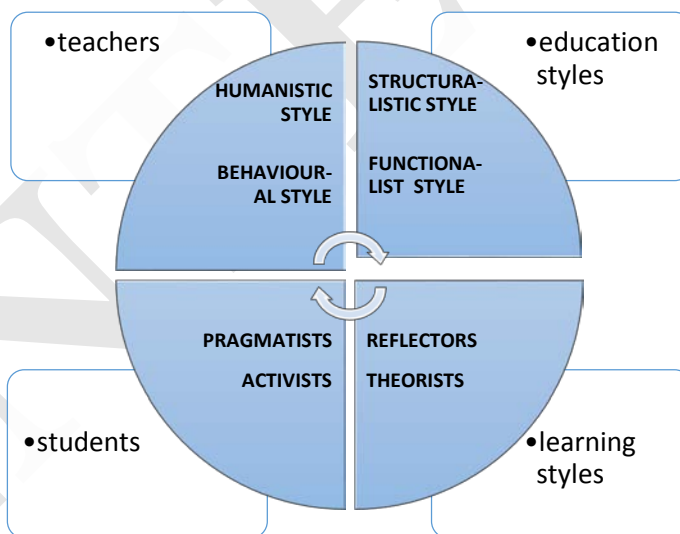


Fig. 3. Connection the education and learning styles

For **behavioural style** is characterized that the teacher designs and implements a sequence of steps that have lead to expected target behaviour. The educational process is a result-oriented and it is a fun way led to the

application of new methods and tools. That style is difficult to prepare teachers, on the other hand, creates a conducive environment for students. Students know what they have learned, they can better remember new knowledge thus grows the attractiveness of these topics or subject.

Let the teacher near any educational style, it is important to handle a wide range of interpersonal skills, such as:

- listen well and ask appropriate questions,
- flexibility in the use of learning methods,
- adapt the pace and methods of teaching for learning students style (this is easier to implement in small study groups),
- improve their expertise, presentation skills and increase the value of their human capital.

It is very important that teachers carried out the evaluation, which is the final and most important phase of the educational process. Evaluation allows the back to look at the educational activities, the success and interest of the students and provides information on how to do in the future in another way, what to improve, which topics to miss out, which topics to supplement and under. Evaluating creates conditions improving the quality of teaching and increase student interest. This is realized by several methods, such as interviews, questionnaires, feedback, self-reflection. Short evaluation can be done after each seminar or tutorial and lecture after the control test at the end of the semester, after the end of the examination period, but also the beginning of the next semester, when we find out the reasons why the students signed up for the course.

6. Conclusion

The amount of relevant information in the world is growing exponentially and the levels of human knowledge are changing rapidly. Although our own experiences are irreplaceable, it is not conceivable that everyone could try everything. Therefore we must also draw from other people's experiences and knowledge. (Tokarčíková, 2011).

A longer period in Slovakia discussed that formal education is becoming more focused on the obtaining of encyclopaedic knowledge. Teaching is less focused on promoting creativity and use creativity to develop the ability to identify problems. Students are less oriented on how to analyze specific situation, present and evaluate alternative solutions, present and defend their own solution. A serious shortage is the low ability pupils and students to use the knowledge in practical applications.

However, businesses need not only educated, but also creative, innovative, proactive and flexible workers. If workers do not meet these criteria, are in an era of globalization and high competition for business rather risk factor. (Klučka, 2011)

When are properly used different modern methods of education and when learning styles of students are correct linked to teachers' educational styles, it is possible to improve the quality and attractiveness of higher education and student preparedness for successful completion of the examination, thesis defense, state exams, but also to deal with everyday and work situations. This is in a presumption for successful application of students in business practice.

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The reality of the use of learning resource centers specialist for libraries and digital resources as a tool for continuing professional development “a comparative study between Egypt and Saudi Arabia”

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Abstract

The present study was geared to investigate the reality of Using Learning resource centres’ specialist for libraries and digital resources as a tool for continuing professional development “A Comparative Study between Egypt and Saudi Arabia” limitation of the study consisted of 120 Egyptian and Saudi learning resource centres’ specialist ,Who Charcot-mail in the questionnaire addressed to them, by using the descriptive method approach – the way the causal comparison- Based on the conclusion that the difference between specialists learning resource centres’ of both country of the application in their estimates the reality of the use of libraries and electronic resource as a tool for professional development and substantial due to differences in demographic variable. The result showed substantial convergence in the reality of use between specialists from both country of the application, and the great care of them to develop themselves professionally.

Key words: Learning Resource Centres’ Specialist, Digital Resources, Educational Digital Libraries, Continuing Professional Development

INTRODUCTION

Information and communications technology represents a pillars of support for the development of modern societies, as it’s being a component of modern infrastructure for all institutions of society seeking for excellence and leadership, the tremendous development of modern communication techniques lead to deepen the utilization of information and data; leading to tremendous developments in information systems , and the potential for and methods of storage, processing, and tied together at the global level through information networks, which is clearly manifested in the huge boom that occurred in the libraries and learning resource centers, and the quality of services they offer.

The growth of knowledge and information technology which happen in world today leads to do rapidly substantive exchanges in the educational communication methods with all its physical and human dimensions ,

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that significantly coincided with the evolution of the elements of contact educational and scientific, which is reflected heavily on the development of systematic attention to issues of education, and its tools which are libraries and Learning Resource Centers one of the most important tools that support self-learning strategies, continuous learning and lifelong learning, and urges that research and investigation.

From this standpoint witnessed libraries profound changes as a result of an explosion of knowledge and informational, and the subsequent technical innovations have contributed to the increasing information, and developed methods of transmission and retrieval; which led them to search for the most successful ways and means to adapt with these new realities, and meet its challenges, according For two directions: the first is supported by scientists specialize in library science, such as Wilfred Lancaster, who believes that libraries in light of the information society on its way to demise (Lancaster, 1978, p345-357), and the second is supported by a team of scientists who believes that libraries libraries have gained prestige thanks to modern technology (Renni,1997,p.21)

As a result of this importance and the new roles of the library in the communities of teaching and learning in different levels, and to expand the activities of electronic publishing raised issues not get used by traditional environment of libraries, and appearance new concepts accompanied the development of libraries to turn for electronic, digital, or virtual library, which required radical changes in the schemes, system, methods and sources of the education.

Which is reflected in a large and influential on the learning resource centers as a natural extension of the school library by its traditional form, which it shall develop plans and strategies for identifying opportunities and challenges, and issues of the near future and long term in order to ensure its continued survival, and excellence in providing services, that is stems by the ability of the existing specialist who working in these centers to provide all services in accordance to the standards of quality and availability.

The educational institutions pursuit to provision new form of information services based on digitization, which allows all parties of the educational environment to sailing in the world of information, overcoming all obstacles spatial and temporal, through the potential of electronic publishing and accounts access to the rules of digital information, which dependent on what can be provided by these institutions of services and technical support for all beneficiaries via learning resource centers specialist, this requires developing the capabilities and skills of learning resource centers specialist, through increase professional development, and invest his energies and his own abilities.

Teaching and learning scope, and even the educational process in general during the second half of the twentieth century faced several challenges represented in the population explosion, cognitive, communications, information revolution and the consequent them of the speed of transfer of knowledge and modernity, which prompted the leading countries to use new educational systems, based on interactive and integrated strategies. Stems from the theory and educational frameworks aimed at achieving integrated education through the provision of effective educational environment inside and outside the classroom, characterized Cooperatively, activity, efficiency, taking into account individual differences among students.

Which require the use of educational and information technology in varying degrees to face these pressures, challenges and overcome those obstacles. We find mass communication offer a solution to the problem of the high demand on education and increase the number of students, thus the inability of educational institutions on the provision of infrastructure such as buildings, facilities and equipment that can be met this huge number of learners, but exceeded this means the limits of time and space and provided education to those who desire it in place according to his time available and cognitive abilities and mental health, and we find educational T.V networks offer the ideal solution to overcome the problem of shortage of teachers especially qualified them and increase the number of students and differentiate they could geographical, and we find audio recordings and video in different shapes and patterns, and ways to provide services offer an important and essential for the breeding process to improve the teaching and the development of vocational training programs, in addition to

making available computer programmers of new forms of learning individual resulting in improved operational performance for students using simulation methods varied and other various computer applications.

Which led to changing the role of both teacher and learner through application-oriented formal educational technology, where the student became in focus of operation instruction, and change the teacher's role to be not limited in traditional role confined to being a specific article of study and advance them, explaining the information textbook, picks the educational means, taking educational decisions, making evaluating tests, , planning ,design , preparation educational process, in addition to being a supervisor , manager , mentor and a resident for all the activities of the educational process which is inside and outside the classroom.

So the learning process became participatory between teacher and learner. enabled the learner chances of self-learning , cooperative, and he had the resources to learn a variety of attractive addresses senses multiple works on development in order to achieve the degree of excellence in education which aims to prepare a generation of students is awareness and creativity, with attention to the economic aspect of the educational process

LITERATURE REVIEW

Digital libraries and digital learning resources centers have increasingly become a gateway to access electronic resources. To provide effective professional development services, for teachers and learners which need to have a good understanding of the role of digital libraries, user's perceptions, and satisfaction. Buckland observes that all digital libraries have been designed backwards because "library services should be user-centered rather than data-centered." He further points out that: "Only when substantially more research and development has been completed from the library user's perspective can the digital library environment begin to have the look and feel of good library (Buckland,2003)

Learning resource center specialist face a new challenge in reaching continuing professional development them self to met invisible users who have only electronic access to libraries. The increased reliance on electronic resources requires reexamination of whom we serve. In a comprehensive study of 4678 respondents in 119 institutions of higher education in the United States, McMartin et al. explore the uses, motivations, and barriers surrounding the use of educational digital libraries by faculty members and instructors. Their survey results of how faculty members and instructors differ in their use and non-use of digital libraries reveal that these groups are "more alike than different use of online digital materials" in variables such as level of experience, institution type, and academic appointment. They find that commonly used demographics in higher education that categorize population could not reliably predict the use of digital resources. (Mc Martin & other, 2008)

Several studies conducted on the effectiveness of the use of libraries and digital resources, including a study of Badawi , which sought to develop the skills to use digital sources for learning resource centers specialist using the tools of the second generation of the Web and measure their attitudes towards these libraries and digital resources, believing the great role and effective achieved by the use of libraries and digital resources in the development of the educational process, and the study found a significant evolution in the skills to use libraries and digital resources have learning resource centers specialist undergoing the training program prepared for this and submitted through the Web 2.0 technologies and specifically blogging (Badawi, 2011)

Study of Liu & Luo that explores the extent to which undergraduate and graduate students in China differs in their digital library use. Unlike the factors promoting digital library use, non-use factors, perceived influences, and degree of satisfaction are quite different between undergraduate and graduate students due to their differing emphases and expectations for information. The implications for digital library services are also discussed.(Liu & Luo,2011). That correspond to each of the studies Bahga Boumarave 2001, that aimed to know the reality of the use of faculty members at the University of Sharjah for the Internet by identifying the areas of use of the network and the usefulness of using the application on a sample of 70 of faculty members at the University of Sharjah all levels of scientific and diagnosis of the problems faced by the use of faculty members to network Internet, where occupied the surf and email, scientific communication between searcher, and search library

catalogs, and the use of digital libraries highest rates of Internet usage with faculty members, and that the time constraints and network slowdowns and a lack of training and the language barrier is the biggest impediments to the use of the network, and the study recommended the need to hold training sessions and workshops to develop the skills to use the Internet and activated in the teaching faculty, and work to raise speed internet connectivity within the university (Boumarave, 2001), and the study of Abdul Latif Abdul Rahman; Adnan Jamal al-Din; Zamela Mahmoud 2011, Which aimed to investigate factors that are expected to influence the intention of postgraduate students to use digital library based on modified UTAUT model. The modified model comprises of constructs represented by several latent variables, namely performance expectancy (PE), effort expectancy (EE), information quality (IQ) and service quality (SQ) and moderated by age, gender and experience in using digital library. Results show that performance expectancy, effort expectancy and information quality are positively related to the intention to use digital library, while service quality is negatively related to the intention to use digital library. Age and gender have shown no evidence of any significant interactions, while

experience in using digital library significantly interacts with effort expectancy and intention to use digital library. This has provided the evidence of a moderating effect of experience in the intention to use digital library. It is expected that this research will shed new lights into research of acceptance and intention to use the library in a digital environment. (Abdul Rahman; Jamal al-Din; Mahmoud, 2011)

All of the above largely complies with Katherine Howard 2010, Which aimed to identify the educational needs of information specialist who work in Australian digital libraries environments, through research the professional skills and information required to work in digital libraries, which classified to public and personal skills via a poll beneficiaries of the services of academic libraries and traditional digital universities in Australia, from educators and practitioners to work office. The study found that the technical skills such as programming skills using high programming languages, such as: Perl, Java, JavaScript, Python, SQL, from less skills required of the beneficiaries of the services digital library, whereas the skills of programming languages dealing with the Internet such as XML, HTML higher skills required of especially among teachers, and skills of designing infrastructure for digital libraries, such as the establishment of networks of peer-to-peer services building networks higher skills required of the beneficiaries in general and practitioners to work desktop in particular, the study recommended the necessity further research dealing with the use of digital library education.

THE AIM OF THE STUDY

The aim of this research is to describing the reality of the use of learning resource centers specialist for libraries and digital resources as a tool for continuing professional development. By Comparing between Egypt and Saudi Arabia

The main question of this research is: what is the reality of the use of learning resource centers specialist for libraries and digital resources as a tool for continuing professional development in both of the Arab Republic of Egypt and Kingdom of Saudi Arabia? , And fork to the following questions:

1. What is the importance of the use of learning resource centers specialist for libraries and digital resources as a tool for continuing professional development?
2. What is the range of use of the use of learning resource centers specialist for libraries and digital resources as a tool for continuing professional development?
3. What is obstacles of the use of learning resource centers specialist for libraries and digital resources as a tool for continuing professional development?

PURPOSE OF THE STUDY

The main aim of this study is to investigate the reality of the use of learning resource centers specialist For libraries and digital resources as a tool for continuing professional development, via comparing between learning resource centers specialist in Egypt and Saudi Arabia to identify:

1. The reality of the use of learning resource centers specialist for libraries and digital resources as a tool for continuing professional development.
2. Change professional development approach's in the development of learning resource centers specialist to be more effective , based on the use of modern technologies.
3. explore the obstacles to the use of learning resource centers specialist for libraries and digital resources as a tool for continuing professional development.

THE IMPORTANCE OF THE STUDY

- Pursuing new approaches to implement continuing professional development for learning resource centers specialist, based on new technology becomes a means to develop the learning process itself.
- Renewal through the employment of new services represented in library and electronic resources as a tool for continuing professional development for all parties of the educational process.

METHODOLOGY

Research Model

The researcher follow in the study descriptive approach - way causation comparison - which is based on the differences between the learning resource centers specialists in their estimates of the reality of the use of learning resource centers specialist for libraries and digital resources as a tool for continuing professional development and the resulting differences in demographic variables.

The study hypotheses

After extrapolation of previous studies researcher formulate hypotheses as follows:

- There is different relative weight, which puts the learning resource centers specialist of the importance of the use of digital libraries and resources as a tool for continuing professional development.
- There is different relative weight, which puts the learning resource centers specialist to the extent of the use of digital libraries and resources as a tool for continuing professional development.
- Estimates vary learning resource centers specialist for each disabled impediments to the use of digital libraries and resources as a tool for continuing professional development.

Participants

The population of this study is all learning resource centers specialists, who in job during the second semester of the academic year 2012/2013 in all of Arab Republic of Egypt, and Kingdome of Saudi Arabia. The sample consists of totally One hundred and sixty (160) learning resource centers specialists from Arab Republic of Egypt, and Saudi Arabia The distribution of the sample subjects are given in Tables 1, 2, 3.

Table 1: Study Sample (Sex/State)

State	Male		Female	
	Number	Percent	Number	Percent
Egypt				
Saudi Arabia				
Total				

Table 2: Study Sample (Center Type Witch learning resource centres specialists work in)

State	Egypt		Saudi Arabia		Total	
	Number	Percent	Number	Percent	Number	Percent
Kindergarten	3	3.8	39	48.8	42	26.2
Primary School	28	35.0	34	42.5	62	38.75
Prep School	27	33.8	4	5.0	31	19.4
Secondary School	16	20.0	3	3.8	19	11.9
Department of Education	2	2.5	0		2	1.25
A major center of the ministry	4	5.0	0		4	2.5
Total	80		80		160	100

Table 3: Study Sample (Experience of learning resource centres specialists)

State	Egypt		Saudi Arabia		Total	
	Number	Percent	Number	Percent	Number	Percent
1-5 year	11	13.8	5	6.3	16	10
6-10 year	44	55.0	65	81.3	109	68.15
11-16 year	19	23.8	2	2.5	21	13.15
more than 16 year	6	7.5	8	10.0	14	8.75
Total	80		80		160	100

Gathering Data

In order to collect data for the study the following data collection tool were used: Electronic questionnaire, send to the study sample via E-mail, social network, wiki, composed of three areas on fifty-seven phrase, covering the following areas:

1. Importance of the use of learning resource centers specialist for libraries and digital resources as a tool for continuing professional development, and is integrated under this dimension Twenty phrase
2. The extent of the use of learning resource centers specialist for libraries and digital resources as a tool for continuing professional development, and is integrated under this dimension fifteen phrase
3. Impediments to the use of learning resource centers specialist for libraries and digital resources as a tool for continuing professional development, and is integrated under this dimension of the twenty-two phrase

Data Analysis

SPSS v.18.0 was used to analyze the data. Frequencies, Mean, Std. Deviation and Independent Samples T-Test was used to determine whether there was a significant difference between Egyptian & Saudis learning resource centres specialist in the three areas of study tool(Importance, extent, Impediments of the use of learning resource centres specialist for libraries and digital resources as a tool for continuing professional development)

FINDINGS

Findings Related to the First Sub-Problem: In this sub-problem, the answer of the question “What is the importance of the use of learning resource centers specialist for libraries and digital resources as a tool for continuing professional development?” was searched for. The aim of examining this problem was to identify the relative weights set by the learning resource centres specialist of the importance of the use of digital libraries and resources as a tool for continuing professional development. The test scores were analyzed by Mean, Std. Deviation, Std. Error Mean .Frequency& Independent Samples T-Test (Tables 4, 5,6).

Table 4: Group Statistics (Mean & Std. Deviation, Std. Error Mean)

Grade	Egypt	Saudi Arabia
Mean	3.6	3.9125
Std. Deviation	1.026238060569781	1.081416675161085
Std. Error Mean	0.11473690322657883	0.12090605988309971

Table 5: (Frequency)

Grade	All Sample		Egypt		Saudi Arabia	
	Number	Percent	Number	Percent	Number	Percent
Very Weak	1	0.6%	1	1.3%	9	11.3%
Weak	19	11.9%	10	12.5%	23	28.8%
Medium	51	31.9%	28	35.0%	14	17.5%
Big	36	22.5%	22	27.5%	34	42.5%
Very Big	53	33.1%	19	23.8%	80	100.0%
Total	160	100.0%	80	100.0%	9	11.3%

Table 6: (Independent Samples T-Test)

	Levene's Test for Equality of Variances		t-test for Equality of Means						
	F	Sig.	t	df	Sig. (2- tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
Equal variances assumed	.775	.380	-1.875	158	.063	-.31250	.16668	-.64171	.01671
Equal variances not assumed			-1.875	157.569	.063	-.31250	.16668	-.64172	.01672

Accordingly, there is not a significant difference between the Egyptian & Saudis learning resource centres specialist in levels of importance of the use of learning resource centres specialist for libraries and digital resources as a tool for continuing professional development ($F=0.775$, $p > .05$)

Findings Related to the Second Sub-Problem: In this sub-problem, the answer of the question “What is the extent of use of the use of learning resource centers specialist for libraries and digital resources as a tool for continuing professional development?” The aim of examining this problem was to identify the relative weights set by the learning resource centers specialist of the extent of the use of learning resource centers specialist for libraries and digital resources as a tool for continuing professional development. The test scores were analyzed by Mean, Std. Deviation, Std. Error Mean .Frequency& Independent Samples T-Test (Tables 7, 8, 9).

Table 7: (Mean & Std. Deviation, Std. Error Mean)

Grade	Egypt	Saudi Arabia
Mean	1.7375	2.05
Std. Deviation	0.8228347112423712	0.8700356460033438
Std. Error Mean	0.09199571742921764	0.09727294236557099

Table 8: (Frequency)

Grade	All Sample		Egypt		Saudi Arabia	
	Number	Percent	Number	Percent	Number	Percent
Very Week	68	42.5%	40	50.0%	28	35.0%
Week	41	25.6%	21	26.3%	20	25.0%
Medium	51	31.9%	19	23.8%	32	40.0%
Total	160	100.0%	80	100.0%	80	100.0%

Table 9: (Independent Samples T-Test)

	Levene's Test for Equality of Variances		t-test for Equality of Means						
	F	Sig.	t	df	Sig. (2- tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
Equal variances assumed	.136	.713	-2.334	158	.021	-.31250	.13389	-.57694	-.04806
Equal variances not assumed			-2.334	157.511	.021	-.31250	.13389	-.57694	-.04806

As shown in table 9 above, there is not a significant difference between the Egyptian & Saudis Learning Resource Centers Specialist in levels of extent of the use of learning resource centres specialist for libraries and digital resources as a tool for continuing professional development ($F=0.136$, $p > .05$), but when the means are taken into consideration, it is seen that the scores of extent of Saudis specialist are higher than Egyptian, This result shows that Saudis specialist better and show higher performance when compared with the Egyptian Learning Resource Centers Specialist.

Findings Related to the Third Sub-Problem: In this sub-problem, the answer of the question “What are obstacles of the use of learning resource centers specialist for libraries and digital resources as a tool for continuing

professional development?” The aim of examining this problem was to identify the relative weights set by the learning resource centers specialist of Impediments to the use of Learning Resource Centers Specialist for libraries and digital resources as a tool for continuing professional development. The test scores were analyzed by Mean, Std. Deviation, Std. Error Mean .Frequency& Independent Samples T-Test (Tables 10, 11, 12).

Table 10: (Mean & Std. Deviation, Std. Error Mean)

Grade	Egypt	Saudi Arabia
Mean	2.8625	3.2125
Std. Deviation	1.3382753874514124	1.4292934432213151
Std. Error Mean	0.14962373694781134	0.15979986494187984

Table 11: (Frequency)

Grade	All Sample		Egypt		Saudi Arabia	
	Number	Percent	Number	Percent	Number	Percent
Very Week	21	13.1%	11	13.8%	10	12.5%
Week	48	30.0%	28	35.0%	20	25.0%
Medium	35	21.9%	18	22.5%	17	21.3%
Big	16	10.0%	7	8.8%	9	11.3%
Very Big	40	25.0%	16	20.0%	24	30.0%
Total	160	100.0%	80	100.0%	80	100.0%

Table 12: (Independent Samples T-Test)

	Levene's Test for Equality of Variances		t-test for Equality of Means						
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
Equal variances assumed	1.444	.231	-1.599	158	.112	-.35000	.21891	-.78237	.08237
Equal variances not assumed			-1.599	157.321	.112	-.35000	.21891	-.78239	.08239

When table 10 is analyzed, it is observed that the mean of Saudis learning resource centers specialist (3.2125) is higher than the mean of Egyptian learning resource centers specialist (2.8625). According to the result of Independent Samples T-Test used (table 10) to investigate whether the difference between Egyptian and Saudis specialist was not significant, ($p > 0,05$). In the light of this result, it can be said that Saudis specialist face more observed than Egyptian.

CONCLUSION, DISCUSSION AND IMPLICATIONS

It was found, after the application the electronic questionnaire in both country (Egypt and Saudi Arabia) great compatibility in the use of libraries and digital resources to achieve professional development for Learning Resource Centers Specialist at an average of rate of 85.83%, which vary according to the variable state, we find the percentage of agreement with the Egyptian Learning Resource Centers Specialist amounting to 84.12%, the rises have reach to 87.55%, in Saudi Arabia Learning Resource Centers Specialist, which is very good rates reflect the importance of the use of digital libraries and resources as a tool for sustainable professional development, and the big motivation in study sample to develop themselves professionally

The study sample (Learning Resource Centers Specialist in Egypt and Saudi Arabia) agree with average of rate 61.10%, that the uses of libraries and digital resources by learning resource centers specialist as a tool for continuing professional development for himself and for all partners of educational process, the ratios are good that reflects the use of libraries and digital resources as a tool for continuing professional development need for more outreach and advertising for what they can contribute in the field of professional development in general and the development of learning resource centers specialist in particular.

Learning resource centers specialist faces many obstacles preventing the employment of libraries and digital resources efficiently to achieve professional development with an average total rate of 78.37% on the specialist learning resources study sample faces obstacles to the use of libraries and digital resources as a tool for professional development sustainable, a percentage that reflects the existence of impediments to the use of digital libraries and resources as a tool for sustainable professional development

Human constraints take the highest level of constraints, that facing continuing professional development of learning resource centers specialist in both country (Egypt and Saudi Arabia), followed by administrative constraints, physical constraints. That reflects the great support provided by the ministries of education in Egypt and Saudi Arabia to provide libraries and digital resources to all partners of educational process, and adopted ambitious plans for the professional development to their members

Differences in the rates of agreement on the terms of the questionnaire axes due to the lack of a university degree to graduate learning resource centers specialist in Saudi Arabia compared to Egypt, where there is a Bachelor of Education Technologies

Poor English language skills for learning resource centers specialist, preclude the desired benefit of libraries and digital resources in achieving continuing professional development

The study recommends that:

- Embrace vision and a clear message to Learning Resources Centers, and clear tasks to the Specialist Working on it.
- Attention to development of English language skills for learning resource centers specialist
- Create educational technology department in college of education to Graduation learning resource centers specialist in Saudi Arabia

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The relationship between teacher candidates' environmentally responsible behaviours and attitudes towards green advertising

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Abstract

People react to environmental problems that threaten themselves according to their perception. How does knowing the actual prices of the products that we buy affect our lives? This study aims to prove the relationship between teacher candidates', who raise the posterity and will be model for them; environmental responsibilities and attitudes towards green advertising. Moreover, the teacher candidates' environmentally responsible behaviours and attitudes towards green advertising are investigated through considering the variants, their genders and the programmes that they have been studying. The data is collected by using Haytko and Matulich (2008)'s attitude toward green advertising scale which was translated to Turkish by Küker (2012). The analysis shows that the teacher candidates' environmentally responsible behaviours and attitudes towards green advertising are on the average level and there is a positive significant relationship between environmental responsibilities and attitudes towards green advertising

Keywords: environmental responsibility, green advertising, teacher candidates, attitude

1. Introduction

It is stated that to be sensitive and to take precautions to environment and its problems, to react against the factors that have negative impact on world ecology, to be sensitive to the products that pave the way for environment problems, to be aware of those products and to boycott them if necessary, to raise awareness about ecological problems among people, and to be ecological literate are common and necessary features of the people that have ecological intelligence (Baş, 2011). To understand the problems affect the nature, to react and take precautions are highly important for the solution of these problems. As Daniel Goleman is stated in his book, *Ecological Intelligence: How Knowing the Hidden Impacts of What We Buy Can Change Everything*, we buy "herbal" shampoos that contain industrial chemicals that can threaten our health or contaminate the environment. We dive down to see coral reefs, not realizing that an ingredient in our sunscreen feeds a virus that kills the reef. We wear organic cotton t-shirts, but don't know that its dyes may put factory workers at risk for leukaemia (Goleman, 2011). We are not informed enough about the impacts of the products to the nature that we consume as a consumer. On the other hand, in recent studies it is stated that individuals are aware of the risks that threaten the environment and they are concerned about it (Slimak and Dietz, 2006; Gursoy et al. 2008; Altunoğlu and Atav, 2009; Kahyaoglu, 2012). People react to environmental problems that threaten themselves according to their perception. If their perceptions are wrong, the efforts to protect the environment and society will fail (Altunoglu ve Atav, 2009). In the study of Straughan and Roberts (1999) it is asserted that the youth are more sensitive about the environmental concerns and

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the urban population is more concerned about the environmental issues than the rural population. The consumption habits of humankind are an important factor of environmental issues. What the people consume, how to consume and the amount of consumption present a dramatic and critical pressure, and if the people all around the world continue to consume the natural sources in this high rate, three planets would be needed to support the people (Knight, 2004). Furthermore, in his study about the behaviours of university students regarding their ethic of consumption Torlak (2001) states that the university students tend to pay more to environmentally friendly products in food and cleaning products whereas they tend to pay less in cosmetic and oil products. Babekoğlu (2009) asserted that if there is one possibility for buying a product for the consumers, they prefer to buy the least damaging for the environment and when they are aware of the product is harmful for the environment, they do not buy the product. Besides, the consumers do not prefer the products including chemical substances that damage the environment and do not have the impulse buying behaviour and generally avoid buying extra packaged products. Having been a progressive increase in the consciousness for environmental issues and problems recently, the terms green consumerism, green marketing, green product and green advertising come into prominence correspondingly. The “green consumers” term is defined as the individuals who are sensitive to environment and act environmental consciously all the stages of buying behaviour process, to use both the purchasing power in order to build the sustainable environment conditions and consumer rights, and to think that they are also responsible for both the society they live with and the posterity in terms of habitat (Nakıboğlu, 2003). Green marketing is defined as a marketing strategy not only meeting the needs and desires of the consumers but also comprising the companies’ goals by producing, pricing, distributing and promotion of eco-friendly products including the process of after consuming (Keleş, 2007). Green products refer to the products that will not threaten the environment, deplete the natural source, can be recycled or preserved (Shamdasani et. al. 1993). Green advertising is defined as the advertising that target the needs and desires of the shareholders and includes the messages such as ecological, nature friendly and environmental sustainability. In other words, green advertising refers the advertising that emphasizes both the company and the products are nature friendly and the company produces the products that do not threaten the environment (Zinkhan & Carlson, 1995; Ulusu & Köksal, 2012). Recently, the attitudes regarding environmental responsibilities vary among the people who are sensitive and conscious about the environmental problems. Especially the advertising has an impact on this issue as the most important feature of the advertising is being persuasive. Persuasion is defined as a way of communication to influence the actions, beliefs and attitudes of people and it contains the process of adoption, enhancement or changing any kind of idea, behaviour or attitude (Simons et. al. 2001). In this process, the attention of the consumers has increased towards the green advertising as they have focused on the environmental problems and environmentally oriented consumption. However, there is not enough study about this issue in our country. This study aims to prove the relationship between teacher candidates’ environmental responsibilities and attitudes towards green advertising. In this respect, the answers were sought to the following questions:

- 1- How are the environmentally responsible behaviours of teacher candidates and their attitudes towards green advertising?
- 2- What kind of a relationship is there between the teacher candidates’ environmentally responsible behaviours and attitudes towards green advertising?
- 3- Is there a significant relationship between the teacher candidates’ environmentally responsible behaviours and attitudes towards green advertising regarding the variants; their genders and programmes they have been studying?

2. Method

2.1. Participants

The study was conducted at Siirt University in Turkey. Participants were 290 prospective teachers who were attending at class and science education department in faculty of education.

2.2. Data Collection

In the research, "Environmentally responsible behaviour scale and the attitude towards the green advertising scale" developed by Haytko and Matulich (2008) was used in order to put forth the candidate teachers' environmental responsibilities and attitudes towards green advertisement. The adaptation of the scale into Turkish was realized by Küker (2012). The scale has two parts: environmentally responsible behaviour scale and attitudes towards the green advertising scale. The scale includes 5-point Likert scale as 1=Strongly disagree, 2=Disagree, 3=Neither agree nor disagree, 4=Agree, 5=Strongly agree. Original scale's Cronbach alpha coefficient reliability is stated as .70. In our study, environmentally responsible behaviour scale's Cronbach alpha coefficient reliability is ascertained as .82.

2.3. Data Analysis

In analyzing the collected scores for the determination of teacher candidates' environmentally responsible behavior and attitudes towards green advertising, arithmetic mean and standard deviation were used. For the determination of the differences among groups t-test was used. Pearson Product Moment Correlation Coefficient analysis was used to examine whether there was a significant relationship between teacher candidates' scores of environmentally responsible behavior and attitudes towards green advertising or not.

3. Results

Findings of the study that aims to determine of relationship between the teacher candidates' environmentally responsible behaviour and attitudes towards green advertising qualifies are given below.

Table-1. Descriptive results related to teacher candidates' environmentally responsible behaviour and attitudes towards green advertising

	N	\bar{X}	SS
Environmentally responsible behaviour	290	2.98	.555
Attitudes towards green advertising	290	3.03	.511

As shown in Table-1, it is determined that teacher candidates' environmentally responsible behaviours arithmetic mean is 2.98 and standard deviation is .555; attitudes towards green advertisement's arithmetic mean is 3.03 and standard deviation .511. In this respect, it can be said that teacher candidates' environmentally responsible behaviour and attitudes towards green advertisement are on average. Furthermore it is identified that teacher candidates' attitudes towards green advertising is higher than their environmentally responsible behaviour.

Table-2. The relationship between teacher candidates' environmentally responsible behaviour and attitudes towards green advertisement

		Attitudes towards green advertising
Environmentally responsible behaviour	r	.415*
	p	.000
	n	290

*p< .01

As shown in Table 2, it is determined that there is a positive mid-level significance between teacher candidates' environmentally responsible behaviour and attitude towards green advertising ($r = .415$; $p < .01$).

Table-3. Arithmetic mean, standard deviation and t-test results related to the teacher candidates' environmentally responsible behaviour and attitude towards green advertisement according to gender

	Gender	N	\bar{X}	SS	t	p
Environmentally responsible behaviour	Female	115	2.92	.519	-3.438	.001*
	Male	175	3.16	.605		
Attitudes towards green advertising	Female	115	2.99	.488	-2.142	.033*
	Male	175	3.13	.555		

*p<.05

As shown in Table-3, it is determined that there is a significant difference between teacher candidates' environmentally responsible behaviours and the variance of gender ($t_{288} = -3.438$; $p < .05$). In addition, it is determined that the arithmetic mean of male teacher candidates' environmentally responsible behaviours are higher than female teacher candidates'. Also there is a significant difference between teacher candidates' attitudes towards green advertising and the gender ($t_{287} = -2.142$; $p < .05$). It can be seen that the arithmetic mean of male teacher candidates' attitudes towards green advertising are higher than female teacher candidates'.

Table-4. The arithmetic mean, standard deviation and T-test results for related to the teacher candidates' environmentally responsible behaviours and attitudes towards green advertising according to the programmes they have been studying

	Programme	N	\bar{X}	SS	t	p
Environmentally responsible behaviour	Science teaching	207	2.89	.518	-4.549	.000*
	Social studies teaching	83	3.21	.581		
Attitudes towards green advertising	Science teaching	207	3.00	.521	-1.742	.083**
	Social studies teaching	83	3.11	.478		

*p<.01; **p>.05

As shown in Table-4, it is determined that there is a significant difference between teacher candidates' environmentally responsible behaviours and the programmes they have been studying ($t_{288} = -4.549$; $p < .01$). Moreover, it is determined that the arithmetic mean of the social studies teacher candidates' environmentally responsible behaviours is higher than the science teacher candidates'. It is revealed that there is not a significant difference between teacher candidates' attitudes towards green advertising and the programmes that they have been

studying ($t_{287} = -1.742$; $p < .05$). It is also found out that the arithmetic mean of the social studies teacher candidates' attitudes towards green advertising is higher than the science teacher candidates' scores

4. Conclusion and Discussion

As a result of the study it is ascertained that the teacher candidates' environmentally responsible behaviours and attitudes towards green advertising are on average level. The individuals that have environmentally responsible behaviours are conscious and sensitive to the environment. These people act solution oriented to the environmental problems, care for social and physical environment more than their economic interest, realize the environmental risks, have positive attitudes towards environment and its problems, and are ecological literate. The individuals who have high responsibility for the environment are aware of their actions against environmental pollution and have a sensitive attitude for humankind. According to Roberts (1995) the individual who has environmentally responsible behaviour chooses the products that do not harm the environment or the least harmful products to the environment in the process of both production and consumption in his/her daily life.

Furthermore the individuals who are environmentally responsible prefer to consume ecologic and green products. This leads the companies to produce and market the green products. Abdul-Muhmin (2007) stated that with the help of purchasing ecologic products the consumers will contribute to increase the quality of environment. This study shows that there is a significant relationship between environmental responsibilities and attitudes towards green advertising. In this respect it can be said that the more environmentally responsible behaviours are increased the more the attitudes towards green advertising are increased or vice versa. Kahyaoğlu (2012) stated that there was a positive relationship between the environmental risk perception and problem solving skills. He also stated that there was a positive significant relationship between environmental risk perception and problem solving skills. Küker (2012) stated that the people who have low environmental responsibilities have negative attitudes towards green advertising and the people who have high environmental responsibilities have positive attitudes towards green advertising. There is a significant difference between teacher candidates' environmentally responsible behaviours and attitudes towards green advertising according to their gender. In the similar study of Ulusu & Köksal (2012), it was stated that there was a significant difference between the gender of university students and their attitudes towards green advertising. Alnıaçık (2010) stated that the ecologically friendly behaviours of females' were higher than males'. In their study concerning consuming behaviours of the university students, Yılmaz & Arslan (2011) stated that the gender of these students affect their environmental behaviours and sensitivity. They also stated that the university students' environmental sensitivity was high whereas their environmentally friendly consuming behaviours were at moderate level. In their study, Aracıoğlu & Tatlıdil (2009) asserted that environmental consciousness and its effect on buying behaviour varied according to gender variance.

In this study it was determined that there was a significant difference between the teacher candidates' environmentally responsible behaviours and their programs that they have been studying; however there was not a significant difference between their attitudes towards green advertising. In their study, Ulusu and Köksal (2010) stated that there was not a significant relationship between the educational background and income level of families and attitudes towards green advertising. Yılmaz et.al (2009) pointed that environmental sensitivity did not affect the environmental behaviour directly. On the other hand, it was pointed that environmental attitudes affected environmental behaviours and accordingly this situation had an important contribution of buying ecologic products among the students. Mainly the families, then the teachers have a big responsibility for developing environmentally responsible behaviours. Besides, our consumption patterns have a significant impact on minimizing the environmental problems. The education and buying behaviours of consumers, their environmentally responsible behaviours and attitudes towards green advertising come into prominence on this issue. Therefore, the examination of the environmentally responsible behaviours and sociological, psychological and demographical features of attitudes towards green advertising are highly important for an effective environmental education.

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The relationship between individual innovativeness and change readiness conditions of students attending faculty of education

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Abstract

The aim of this study is to determine the relationship between individual innovativeness and change readiness conditions of the students of Sakarya University Faculty of Education. In addition, students' conditions of change readiness were analyzed according to gender, type of instruction, academic average and department in the study. Relational survey model was used as the research method. "Change Readiness Scale" developed by Kondakçı, Zaim and Çalışkan (2013) and having 12 items and 3 dimensions (change readiness in determination extent, change readiness in emotion and change readiness in cognitive extent); and "Individual Innovativeness Scale" adapted to Turkish by Kılıçer and Odabaşı (2010) were used as the data collecting tool in the study. The population comprised 4279 students studying at Sakarya University Faculty of Education in 2012-2013 academic year while the sample included 503 students determined through the method of determining simple random sampling used where number of individuals are known. The findings of the study are as follows:

1. When examining individual innovativeness of pre-service teachers, it was found that 4,4% of them were innovator, 34,2% of them were early adaptors, 49,5% of them were early majority, 9,1% of them were late majority and 2,8% of them were laggards.
2. There is a positive relationship at .70 between individual innovativeness and change readiness of pre-service teachers.
3. The change readiness conditions of the students differentiate in terms of gender, academic average and department variables.
4. The change readiness conditions of the students do not show a significant difference in terms of type of instruction variable.

Key Words: pre-service teachers, change readiness, individual innovativeness

1. INTRODUCTION

Some of the characteristics of 21st century can be expressed as globalization, technological advances, facilitation of information accessibility, innovation and accompanying change. Cultures stay the same, but they also change.

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Culture is the outcome and presentation of the development of organizations, societies, and nations. It is "the commonly- held and relatively stable beliefs, attitudes and values" (Hall, 1995, Cit. Xu, 2009). Economical improvement, structural and social problems and technological reforms are among the factors that force the world to change (Cenker and Akgül, 2011). Change was summarized by Dewey (1916) as follows: "How act is physical

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real, then change is social fact.” As stated by Heraclius, the only thing that does not change in the world is that everything changes (Dönmezer,1978).

The change lived extensively in all areas of society has altered the properties which individuals should have in a fundamental way. It is stated that making habit of lifelong learning; meeting individual responsibility and flexibility in personal space and open to public and business areas; having the ability of analysis, access, use, adaptation, evaluation and creation of information in different forms and environments; gaining the ability of identifying, analyzing and solving a problem; not only developing ideas, implementing them and sharing them with others but also being open and willing to new and different perspectives at the same time are necessary for individuals in 21st century (Partnership for 21st Century Skills, 2003). According to Rogers (1995) it can be said that those individuals having these skills are generally the ones who can access information in any condition, can solve problems, can produce innovation; briefly, who can show innovativeness features (Cit. Kılıçer, 2011).

According to Goldsmith and Foxall (2003), in terms of educational researchers, innovation is the thing or the idea which is new for a particular individual or group and causes change through its adoption/ use. Innovativeness is defined by Braak (2001) as willingness to change. Innovativeness contains both “positive reaction to the new” and “being on innovation” (Cit. in Kılıçer, 2011). Individual innovativeness is related to individual’s willingness to innovation and to making difference through making a positive reaction to innovations as a behavior (Uzkurt, 2008).

In addition, innovativeness is considered as an umbrella concept which hosts the characteristics of such terms of risk-taking, openness to experience, creativeness and thought leadership. Accordingly, individuals in society differ from each other in the context of innovativeness in terms of their characteristics. According to the classification made by Rogers (1995), individuals are divided into 5 categories according to their innovativeness level. These categories are called as innovators, early adopters, early majority, late majority and laggards (Cit. Kılıçer ve Odabaşı, 2010).

According to the classification made by Rogers (1995), innovators are the first ones who adopt innovations in the social system. They are such individuals who differ from others in the social system in terms of their contrary properties and who likes trying out new ideas and risk-taking and have vision. Early adopters have such properties as providing information about innovations to other members of the community and guiding them. Especially late adopters of innovations view early adopters’ attitude towards innovations and give direction to decision-making process of innovation. Early majority act prudently and cautiously to innovations. Before adopting a new idea, they spend a great time to thinking about them. Therefore, early majority’s decision-making process of innovation is longer than innovators’ and early adopters’. Neither early majority are the first to adopt innovations in social system nor do late majority demonstrate a suspicious and timid attitude towards innovations and wait until the majority of social system adopt that innovation. Therefore, late majority adopt innovations after the average members of social system. Laggards prejudge innovations and exhibit a trend to adopt innovations most recently. Because laggards’ decision-making process of innovation is too slow, the innovators in their social system already start to use an innovation and adopt it while laggards decide to adopt that innovation (Cit. Kılıçer ve Odabaşı, 2010).

Training of the required human resource for innovation necessitates reconstruction of educational policies and education system based on this situation. This reconstruction requires fundamental changes. Educational organizations also experience change in order to keep up with the developments in the external environment and to bring up the students with the requirements of the modern world (Aydoğan, 2007). Changes in education reflect in training programs, students and teachers. Teacher’s role is great for conducting change in a healthy way in organizations. It is not possible to switch to a new society painlessly and untroubled in company with the teachers who do not comprehend change and are not aware of their importance and function against change (Doğan, 1998). It can be said that the qualifications of trainers stands between the factors that may be obstacles to

being an innovative individual. To do this, it is stated that education system should advance in the manner to give direction to training required innovative individuals (Bo ve Ye-mei, 2010, cit.Kılıçer, 2011). In accordance with reconstruction, it is emphasized on the necessity of innovation and entrepreneurship based on innovation, gaining the culture of innovation to individuals at an early age, and being kept alive in all educational periods (Elçi, 2006).

Teachers and pre-service teachers who are to guide future generations should be open to change and innovative in order to provide to gain innovation culture to future generations at an early age and to grow such individuals open to change. When examining the literature in this context, such studies of being open to change, attitudes towards change and tendency studies about teachers and administrators were found (Akpınar and Aydın, 2007; Zayim, 2010; Cenker and Akgül, 2011; Helvacı and Kıcıroğlu, 2010; İnan, 2011; Helvacı, Çankaya and Bostancı 2012; Beycioğlu and Aslan, 2010; Aydoğan, 2007; Demirtaş, 2012). However, any study made for determining the relationship between openness to change conditions and individual innovativeness of pre-service teachers who will be the tutorials of future generations could not be found. The aim of this study is to determine the relationship between the relationship between individual innovativeness and change readiness conditions of pre-service teachers. For this purpose, the following problems and sub-problems were questioned:

1. What are pre-service teachers' conditions of individual innovativeness?
2. Do students' conditions of change readiness differentiate according to gender, academic average, type of instruction and department variables?
3. Is there a relationship between individual innovativeness conditions and change readiness conditions of pre-service teachers?

2. METHOD

In the current study, the case study method was used as relational survey model. Relational survey model is a research model which aims to determine the presence and degree of simultaneous change between two or more variable (Karasar, 2005).

The population comprised 4279 students studying at Sakarya University Faculty of Education in 2012-2013 academic year while the sample included 503 students determined through the method of determining simple random sampling used where number of individuals are known.

“Change Readiness Scale (CRS)” developed by Kondakçı, Zaim and Çalışkan (2013) and having 12 items and 3 dimensions (change readiness in determination extent, change readiness in emotion and change readiness in cognitive extent) was used as one of the data collecting tool in the study. Cronbach's Alpha value of this scale was found to .89 in this study.

For the purpose of evaluating individuals' innovativeness in general sense, “Individual Innovativeness Scale (IIS)” of which original name “Innovativeness Scale” developed by H. Thomas Hurt, Katherine Joseph and Chester in 1977 and which was adapted to Turkish by Kılıçer and Odabaşı (2010) was used as the other data collecting tool in the study. The scale is 5-point Likert type and consists a total of 20 items, including 12 positive and 8 negative items. Cronbach's Alpha value of this scale was found to .71 in this study.

Innovativeness score in IIS is calculated by adding 42 points to the score obtained by subtracting the total points of negative items from the total points of positive items. The lowest 14 score and the highest 94 score can be retrieved from the scale. According to the scores calculated on the scale, individuals can be categorized in the

context of innovativeness. Accordingly, individuals are interpreted as “Innovators” if the calculated score is higher than 80, as “Early Adopters” if between 69 and 80, as “Early Majority” if between 57 and 68 as “Late Majority” if between 46 and 56, and as “Laggards” if under 46. According to the scores calculated on the scale, it can be also made evaluation about individuals’ innovativeness in general sense. Accordingly, the individuals whose score is over 68 are evaluated as highly innovator while the individuals whose score is lower 64 are interpreted as low in innovation.

The data were analyzed by SPSS 20 package program and frequency, t-test, one-way ANOVA and simple partial correlation analyzes were used.

3. FINDINGS

The analysis of the study made for determining the relationship between pre-service teachers’ conditions for individual innovativeness and change readiness; and the change readiness conditions’ relation with gender, department, type of instruction and academic average are given in the tables below.

Table1: Pre-service Teachers’ Conditions of Individual Innovativeness

		Innovators		Early Adopters		Early Majority		Late Majority		Laggards		Total	
		N	f (%)	N	f (%)	N	f (%)	N	f (%)	N	f (%)	N	f (%)
Gender	Male	11	6,0	54	29,3	88	47	24	13	7	3,8	184	100
	Female	11	3,4	118	37,0	161	50,5	22	6,9	7	2,2	319	100
Type of instruction	Day Instruction	12	4,9	82	33,7	119	49,0	22	9,1	8	3,3	243	100
	Night Instruction	10	3,8	90	34,6	130	50,0	24	9,2	6	2,3	260	100
General Academic Average	Below 2	0	0,0	9	31,0	13	44,8	4	13,8	3	10,3	29	100
	Between 2-3	12	4,8	75	30,0	132	52,8	26	10,4	5	2,0	250	100
	Between 3-4	10	4,5	88	39,3	104	46,4	16	7,1	6	2,7	224	100
Department	PST	2	2,2	34	37,4	38	41,8	11	12,1	6	6,6	91	100
	CIT	5	4,1	44	36,1	62	50,8	10	8,2	1	0,8	122	100
	PCG	12	7,1	62	36,5	83	48,8	11	6,5	2	1,2	170	100
	SE	3	5,1	17	28,8	27	45,8	8	13,6	4	6,8	59	100
	ME	0	0,0	15	24,6	39	63,9	6	9,8	1	1,6	61	100

When examining the Table 1, it is seen that according to gender, 47% of male teachers are “Early Majority” and 3,8% of them “Laggards” while 50,5% of female teachers are “Early Majority” and 2,2% of them “Laggards”; according to type of instruction, 49% of day instruction students are “Early Majority” and 3,3% of them “Laggards” while 50% of night instruction students are “Early Majority” and 2,3% of them “Laggards”; according

to general academic average, 44,8% of the pre-service teachers whose average is below 2 are “Early Majority” and 0% of them “Innovators”; 52,8% of the pre-service teachers whose average is between 2 and 3 are “Early Majority” and 2% of them “Laggards” while 46,4% of the pre-service teachers whose average is between 3 and 4 are “Early Majority” and 2% of them “Laggards; according to department, 41,8% of the pre-service teachers of PST (Primary School Teaching) department are “Early Majority” and 2,2% of them “Innovators”; 50,8% of the pre-service teachers of CIT (Computer and Instructional Technologies) department are “Early Majority” and 0,8% of them “Laggards”; 48,8% of the pre-service teachers of PCG (Psychological Counseling and Guidance) department are “Early Majority” and 1,2% of them “Laggards”; 45,8% of the pre-service teachers of SE (Special Education) department are “Early Majority” and 5,1% of them “Innovators”; 63,9% of the pre-service teachers of ME (Mathematics Education) department are “Early Majority” and 0% of them “Innovators”. From the pre-service teachers’ innovativeness, it can be generally said that they are in “early majority.

Table 2: t-Test Analysis Results of Pre-Service Teachers’ Conditions of Change Readiness According to Gender and Type of Instruction Variables

Variable	N	\bar{x}	SS	Sd	t	P
Gender	Male	184	45.62	8.15	501	2.385
	Female	319	47.10	5.62		
Type of Instruction	Day	243	46.24	7.43	501	1.038
	Night					
	Instruction	260	46.86	5.91		

*P<0.05

As seen in the Table 2, pre-service teachers’ conditions of change readiness show a significant difference according to gender variable [$t_{(501)} = 2.385$; $P < 0.05$]. Examining arithmetic means, it is stated that male change readiness conditions of pre-service teachers ($\bar{x} = 47.10$) are higher than the male pre-service teachers’ ($\bar{x} = 45.62$). Pre-service teachers’ conditions of change readiness do not show a significant difference according to type of instruction variable [$t_{(501)} = 1.038$; $P < 0.05$].

Table 3. ANOVA Analysis Results of Pre-Service Teachers' Conditions of Change Readiness According to Gender and Department Variables

Değişken		N	\bar{X}	SS	sd	F	P (Scheffe)
General Academic Average	Below 2	29	43.10	8.711	2-500	6.387	.002* 1-2,1-3
	Between 2-3	250	46.17	6.366			
	Between 3-4	224	47.44	6.600			
	Total	503	46.56	6.693			
Department	PST	91	46.11	8.625	4-498	4.651	.001* 4-2,4-3
	CIT	122	47.57	5.835			
	PCG	170	47.47	5.535			
	SE	59	43.91	8.023			
	ME	61	45.21	5.707			
	Total	503	46.56	6.693			

*P<0.05

When examining the Table 3, there is a significant difference in the pre-service teachers' conditions of change readiness according to academic average [$F_{(2-500)} = 6.387$; $P < 0.05$]. In this context, pre-service teachers' conditions of change readiness change according to their academic averages.

According to Scheffe test conducted for determining of which groups there is a difference in terms of general academic average, the views of the pre-service teachers whose general academic average is below 2 ($\bar{X}=43.10$) differ from the views of the ones whose general academic average is between 2 and 3 ($\bar{X}=46.17$) and from the views of the ones whose general academic average is between 3 and 4 ($\bar{X}=47.44$).

It is seen that there is a significant difference in the pre-service teachers' conditions of change readiness according to department variable [$F_{(2-500)} = 4.651$; $P < 0.05$]. In this context, pre-service teachers' conditions of change readiness change according to their departments.

According to Scheffe test conducted for determining of which groups there is a difference in terms of department variable, the views of the pre-service teachers studying in Special Education department ($\bar{X}=43.91$) differ from the views of the ones studying in Computer and Instructional Technologies ($\bar{X}=47.57$) and the views of the ones studying in Psychological Counseling and Guidance ($\bar{X}=47.47$).

Table4: The Relationship between Pre-Service Teachers' Conditions of Individual Innovativeness and Change Readiness

		Individual Innovativeness	Change Readiness
Individual Innovativeness	Pearson Correlation	1	,70**
	P		,000
	N	503	503
Change Readiness	Pearson Correlation	,70**	1
	P	,000	
	N	503	503

P<0,05

There is a significant difference*

When examining the Table 4, it is seen that there is a high-level positive and significant relationship between pre-service teachers' conditions of individual innovativeness and change readiness, $r= 0.70$, $P<0,05$. Accordingly, it can be said that if individual innovativeness increases than change readiness also increases. Taken into account the coefficient of determination ($r^2= 0,49$), it can be said that 49% of total variance (variability) in the change readiness condition stems from being an individual innovativeness.

4. RESULTS AND DISCUSSION

503 students including 319 female and 184 male students participated in the conducted research related to pre-service teachers. 243 of these students study in day instruction and 260 of them study in night instruction. The pre-service teachers' conditions of individual innovativeness was found 4,4% as innovator, 34,2% as early adopter, 49,5% as early majority, 9,1% as late majority and 2,8% as laggards as the result of the data analysis. This result overlaps with the findings showing that the participants have largely "early adopter" characteristic in the studies conducted with pre-service teachers by Adıgüzel (2012), Kert and Tekdal (2012), Kılıçer (2011) and İncik and Yelken (2011).

Additionally, when the pre-service teachers' conditions of individual innovativeness were examined according to gender, it can be said that male and female pre-service teachers have largely "early adopter" characteristic. Examining the data in terms of department, it can be stated that the pre-service teachers studying in Psychological Counseling and Guidance department show more innovator characteristic while the pre-service teachers studying in Primary School Teaching and Special Education departments are more in terms of laggard characteristics.

It was found that the pre-service teachers studying in Mathematics Education are less than the ones in the other departments in terms of individual innovativeness. This finding show similar features with the findings in the

study of “The relationship between individual innovativeness and information gaining skills of pre-service teachers” conducted by Bitkin (2012).

The pre-service teachers’ conditions of change readiness according to gender show a significant difference. Examined the results, it was stated that the female pre-service teachers’ conditions of change readiness are higher than the male pre-service teachers’. This situation shows that there is a significant difference for the benefit of the female pre-service teachers in terms of gender. The pre-service teachers’ conditions of change readiness according to type of instruction do not show a significant difference.

It is seen that the pre-service teachers’ conditions of change readiness according to general academic average show a significant difference. It can be stated that the pre-service teachers’ conditions of change readiness change according to general academic average. According to Scheffe test conducted for determining of which groups there is a difference in terms of general academic average, the views of the pre-service teachers whose general academic average is below 2 differ from the views of the ones whose general academic average is between 2 and 3 and from the views of the ones whose general academic average is between 3 and 4.

It is seen that there is a significant difference in terms of the pre-service teachers’ conditions of change readiness according to department variable. It can be said that pre-service teachers’ conditions of change readiness change according to department variable. According to Scheffe test conducted for determining of which groups there is a difference in terms of department variable, the views of the pre-service teachers studying in Special Education department differ from the views of the ones studying in Computer and Instructional Technologies and the views of the ones studying in Psychological Counseling and Guidance.

It is seen that there is a high-level positive and significant relationship between pre-service teachers’ conditions of individual innovativeness and change readiness, $r = 0.70$, $P < 0.05$. Accordingly, it can be said that if individual innovativeness increases then change readiness also increases. Taken into account the coefficient of determination ($r^2 = 0.49$), it can be said that 49% of total variance (variability) in the change readiness condition stems from being an individual innovativeness.

According to the research findings, it is seen that the pre-service teachers’ conditions of individual innovativeness are largely “early adopters”. Therefore, it can be said that the pre-service teachers will act prudently and cautiously against innovations to be made in education systems. However, it is expected that teachers should be the pioneer leading the society, bringing innovations to the society and pointing the way for innovations. Therefore, it can be suggested that pre-service teachers should be trained in the manner of being more open to innovations and having vision, and that teacher education programs should be arranged accordingly.

According to the research findings, the pre-service teachers’ conditions of change readiness show significant differences in terms of gender, academic average and department variables. However it is expected that all teachers and pre-service teachers should not stay behind innovations in 21st century and in such a world where nothing is stable. Teacher is the key of innovation. Therefore, it can be proposed that educational programs should include such activities which are to bring the consciousness of readiness for constant change in order to provide pre-service teachers such a training in which their readiness levels are high and they can keep up with what change brings.

According to the research findings, it is seen that there is a high-level positive and significant relationship between pre-service teachers’ conditions of individual innovativeness and change readiness. Pre-service teachers ready for change are needed to keep up with changes in technology, science, art and society. Based on the

positive high relationship between individual innovativeness and change readiness it can be expressed that we should train such pre-service teachers who can accept change more easily, can adopt to change more quickly as a teacher.

More new researches can be conducted through using the findings of this study and through further deepening of the scope of the research. At the same time, new researches can be expanded by taking into account of socio-demographic variables of pre-service teachers.

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4th International Conference on New Horizons in Education

The Relationship between Mathematics Teaching Self-efficacy and Mathematics Self-efficacy

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Abstract

Self-efficacy is one of the important factors for teaching mathematics effectively. For this purpose, the study aims to investigate the relationship between mathematics teaching self-efficacy and mathematics self-efficacy of pre-service elementary mathematics teachers. A Self-efficacy Beliefs towards Mathematics Teaching Scale was developed by Dede (2008) and Mathematics Self-efficacy Scale was developed by Umay (2002) were used. The scale was conducted to 144 pre-service elementary mathematics teachers in 2012- 2013 academic year. Data was analyzed by using SPSS 17.0 Package program. The results of the study revealed that pre-service elementary mathematics teachers' self-efficacy beliefs scores towards mathematics teaching and mathematics are high and there is a positive relationship between mathematics teaching efficacy and mathematics self-efficacy. In addition, the results of the study have been discussed by comparing it with literature. Then, some suggestions have been presented for the researchers who are interest in self-efficacy beliefs towards mathematics teaching.

Keywords: self-efficacy, teaching mathematics, pre-service elementary mathematics teachers

1. Introduction

Affective domains influence mathematics learning and teaching such as cognitive domains. One of the most important affective factor is self-efficacy. According to Bandura's social cognitive theory (Bandura, 1977), self-efficacy is one's beliefs about his or her ability to achieve a certain level of accomplishment. Mathematics self-efficacy is a person's belief in their ability to successfully perform mathematics (Burnham, 2011). Bandura asserted that "self-efficacy beliefs are manifested from four primary sources: personal accomplishments, vicarious learning experiences, verbal persuasion and emotional arousal" (Perepiczka et.al, 2011). If self-efficacy beliefs are high, it causes that individuals effectuate high targets and they consists with their decisions. This effects their cognitive processes and motivation more. (Locke & Latham, 1990 cited by Akbaş & Çelikkaleli, 2006).

On the other hand self-efficacy belief is one of the important factors of teaching mathematics' effectively (Dede, 2008). Teacher efficacy has been defined as "the extent to which the teacher believes he or she has the capacity to affect student performance" (Tschannen-Moran et al. 1998: 202). Teachers' self-efficacy beliefs have been associated with positive teaching behaviors and student outcomes (Henson, 2001). Studies have revealed that a significant relationship between teacher self-efficacy and students' achievements (Siegle, 2003). Teacher efficacy directly affects the teaching processes, the way teachers teach the lesson and classroom environment

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(Gordon, 2001). Woldo stated that even if teachers who have high self-efficacy meet unsuccessful or difficult learning students, they effort more during teaching process because of they believe themselves and their students (cited by Zengin, 2003:15).

A large body of researches are about self-efficacy related to academic performance (Azar, 2010; Denise & O'Neil, 1997; Sewell & George, 2000). Nevertheless, many researchers indicate that examining pre-service elementary mathematics teachers' self-efficacy beliefs in learning and teaching is an important factor in education. However, studies examining the relationship between students' mathematics teaching self-efficacy beliefs and mathematics self-efficacy beliefs are rather limited. In this context, pre-service elementary mathematics teachers' perceptions who will be teacher in the future self-efficacy beliefs are needed to determinate and the result needs to be revealed.

The study aims to investigate the relationship between mathematics teaching efficacy and mathematics self-efficacy of pre-service elementary mathematics teachers. Four research questions were included in this study: (a) what is the pre-service elementary mathematics teachers self-efficacy level? (b) what is the pre-service elementary mathematics teachers' teaching self-efficacy level? (c) is there any significant difference of pre-service elementary mathematics teachers' mathematics teaching self-efficacy scores and mathematics self-efficacy scores by gender? (d) is there any relationship between mathematics self-efficacy and teaching self-efficacy?

2. Methods

2.1. Research Design

The correlational model was used in the process of the research. Correlational model is a quantitative method which investigate the possibility of relationships between two or more variables from the same group of subjects (Fraenkel & Wallen, 2005; Karasar, 2005).

2.2. Sample

The study was conducted 144 pre-service elementary mathematics teachers in 2012- 2013 academic year studying at Aksaray University. The convenience sampling method was used to determine the sample for this study. From 144 participants, 35 were male and 109 were female. 36 were freshman, 40 were sophomore, 43 were junior and 25 were at senior level.

2.3. Instrument

A Self -efficacy Beliefs toward Mathematics Teaching Scale was developed by Dede (2008) and Mathematics Self – efficacy Scale was developed by Umay (2002) were used as a data collection tool. Mathematics self-efficacy scale consisted of 12 likert type items. It contains three subdimensions: Mathematics self-concept, awareness of the behavior of mathematics and transforming mathematics to life skills. The reliability of the scale was 0.88. A Self -Efficacy Beliefs towards Mathematics Teaching Scale consisted of 14 likert type items which were developed by the researcher. The reliability of the scale was 0.79. Some of items of the scale were based on the work done by Riggs and Enochs (1990). It contained sub-factors items measuring mathematics teachers' efficacy in teaching (including 4 items), make to motivate and take on responsibility (including 6 items), and effective teaching (including 4 items).

2.4. Data Analysis

Quantitative techniques were used in the analysis of data. Data were analysed by using the SPSS 17.0 statistics programs. To determine the gender differences of self-efficacy scores independent sample t test were used. To find out relationship between pre-service teachers' mathematics self-efficacy and their mathematics teaching self-efficacy, a Pearson product-moment correlation was applied to the data.

3. Findings

3.1. Pre-service Elementary Mathematics Teachers' Self-Efficacy Beliefs toward Mathematics Teaching

The means and the standard deviations of the pre-service elementary mathematics teachers' self-efficacy beliefs towards mathematics teaching for the each item of the survey are shown in Table 1. Items are given in terms of the dimensions of the survey.

Table 1. Descriptive statistics of dimension of Mathematics Teaching Self-efficacy .

Items	N	Lowest score	Highest score	\bar{X}	sd
Mathematics teachers' efficacy in teaching	144	7	20	14.41	2.64
Make to motivate and take on responsibility	144	13	29	21.65	2.90
Effective teaching	144	5	20	15.94	2.04

Data presented in Table 1 reveals that pre-service elementary mathematics teachers' means of self-efficacy scores and standard deviation values regarding mathematics teaching self-efficacy scores was found to be 14.41 and 2.64 in mathematics teachers' efficacy in teaching dimension; 21.65 and 2.90 make to motivate and take on responsibility dimension; 15.94 and 2.04 effective teaching dimension. These values show that, pre-service elementary mathematics teachers have high self- efficacy beliefs towards mathematics teaching.

3.2. Pre-service Elementary Mathematics Teachers' Self-Efficacy Beliefs toward Mathematics

The means and the standard deviations of the pre-service elementary mathematics teachers' self-efficacy beliefs towards mathematics for the each item of the survey are shown in Table 2. Items are given in terms of the dimensions of the survey.

Table 2. Descriptive statistics of dimension of Mathematics Self-efficacy .

Items	N	Lowest score	Highest score	\bar{X}	sd
Mathematics self-concept	144	12	25	20.88	2.65
Awareness of the behavior of mathematics	144	15	30	25.31	2.84
Transforming mathematics to life skills	144	3	15	10.31	2.11

Data presented in Table 2 reveals that pre-service elementary mathematics teachers' mean score and standard deviation values regarding mathematics self-efficacy scores was found to be 20.88 and 2.65 in

mathematics self-concept dimension; 25.31 and 2.84 in awareness of the behavior of mathematics dimension; 10.31 and 2.11 transforming mathematics to life skills dimension. These values show that, pre-service elementary mathematics teachers have high self- efficacy beliefs towards mathematics.

3.3. The Effect of Gender on Self -Efficacy Beliefs toward Mathematics Teaching

For the purpose of determining whether pre-service elementary mathematics teachers' self -efficacy beliefs toward mathematics teaching show a significant difference according to gender, independent t-test was applied to the data with a significance level of 0.05.

Table 3 .t test of pre-service elementary mathematics teachers' Self -Efficacy Beliefs toward Mathematics Teaching by gender

Group	N	\bar{X}	Sd	df	t	p
Female	109	52.54	6.09	142	0.900	0.370
Male	35	51.40	7.73			

As seen from Table 3, female pre-service elementary mathematics teachers' average of beliefs scores about mathematics is 52.54, while male, whether pre-service elementary mathematics teachers, average of beliefs scores about mathematics is 51.40. Independent t-test results show that there is no significant statistical difference between averages. ($t_{(144)}=0.900$), $p<0.05$).

3.4. The Effect of Gender on Self -Efficacy Beliefs toward Mathematics

For the purpose of determining whether pre-service elementary mathematics teachers' self -efficacy beliefs toward mathematics show a significant difference according to gender, independent t-test was applied to the data with a significance level of 0.05.

Table 4. t test of pre-service elementary mathematics teachers' Self -Efficacy Beliefs toward Mathematics by gender

Group	N	\bar{X}	Sd	df	t	p
Female	109	47.48	5.53	142	0.342	0.733
Male	35	47.11	5.77			

As seen from Table 4, female pre-service elementary mathematics teachers' average of beliefs scores about mathematics is 47.48, while male, whether pre-service elementary mathematics teachers, average of beliefs scores about mathematics is 47.11. Independent t-test results show that there is no significant statistical difference between averages. ($t_{(144)}=0.342$), $p< 0.05$).

3.5. The Relationship Between Mathematics Teaching Self- Efficacy and Mathematics Self-Efficacy

The relationship between mathematics teaching self-efficacy scores and mathematics self-efficacy scores was investigated by using pearson product-moment correlation coefficient. Preliminary analyses were performed to

ensure no violation of the assumptions of normality, linearity and homoscedasticity. There was a positive correlation between the two variables, $r = ,447$, $n = 45$, $p < ,001$, with high levels of mathematics teaching self-efficacy associated with high levels of mathematics self-efficacy.

Table 5 . Pearson product-moment correlations between mathematics teaching self-efficacy scores and mathematics self-efficacy scores

Variables	1	2
1. Mathematics teaching Self-efficacy scores	-	,447**
2. Mathematics self-efficacy scores	,447**	-

4. Conclusions and Recommendations

The findings of the study revealed that pre-service elementary mathematics teachers have high self-efficacy beliefs towards mathematics and mathematics teaching. Results of this study indicated that the mean scores of items measuring mathematics teachers' efficacy in teaching, make to motivate and take on responsibility and are well above the mid-point of five-point Likert scale indicating pre-service elementary mathematics teachers have high self-efficacy on each self-efficacy domain and this study also found out that there is no significant statistical difference between mathematics self-efficacy beliefs averages by gender. Dede (2008) indicated that primary school mathematics teachers, high school mathematics teachers' efficacy in teaching, making to motivate and taking on responsibility, and effective teaching sub-factors of the scale had quite high self-efficacy beliefs. The present data are in congruent with the results of Dede (2008). Yenilmez and Kakmacı (2008) found out that elementary mathematics education students' self- efficacy levels were high for the items under student control, while it was low for the items that needed the help of other people.

In addition, current study revealed that there is a strong positive relationship between pre-service teachers' mathematics teaching self-efficacy and mathematics self-efficacy. A statistically significant positive relationship also was found between mathematics teaching efficacy and mathematics self-efficacy (Bates, Latham, & Kim, 2011). In general, it is suggested that in order to enhance pre-service mathematics teachers teaching self-efficacy, mathematics education programs are structured to get experience teacher candidates for make to motivate students' and take on responsibility. For future research, a qualitative study will be implemented to find out relationships among mathematics teaching efficacy, mathematics self-efficacy.

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4th International Conference on New Horizons in Education

The relationship of leadership and student achievement across societal cultures

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Abstract

School leaders are aware that their effectiveness is often defined by student performance as measured by test scores. Of particular interest in the global arena are the results of the TIMSS and PISA international assessments that rank student performance by country. While researchers and educators seek to account for the high achievement on these assessments, many turn to the characteristics and behaviors of school leaders to explain the difference in rankings. However, to view effective school leadership behaviors and characteristics from a global perspective poses some challenges, as societal culture influences the leadership process. As way to investigate leadership by societal cultures across the globe, the investigators of this study turned to The Global Leadership and Organizational Behavior Effectiveness (GLOBE) research survey, in which a research team described a large number of characteristics and behaviors, or universal leadership dimensions, to assess the different ways in which various societal clusters viewed leadership. The investigators of this study explore the relationship of global leadership using the GLOBE cultural leadership dimensions and student achievement as measured by TIMMS and PISA within cultural clusters. Findings indicated that four universal leadership dimensions, including charismatic/values based leadership, participative leadership, autonomous leadership, and self-protective leadership, were identified through ANOVA to be significant in predicting student achievement, which led the researchers to conclude that administering the GLOBE Survey to school leaders is necessary to determine the importance and value of the leadership dimensions relative to educational leaders across all cultures.

Keywords: leadership; leadership dimensions; student achievement; international; GLOBE

1. Introduction

School leadership and student achievement are now global issues (Zhao, 2010). One only has to study student achievement measures as put forth by the Programme for International Student Assessment (PISA) and Trends in International Mathematics and Science Study (TIMSS), launched in 1995 and 1997 respectively, to determine that the world's eyes are on international comparisons of student performance across the globe. In a major large-scale cross-cultural research program, Global Leadership and Organizational Behavior Effectiveness (GLOBE) researchers studied inter-relationships of leadership, organizations, and societal culture, using data from 62 countries of the world. Recognizing that leadership and student achievement have gone global, the investigators

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of this study were motivated to explore the relationship between leadership behaviors and characteristics and student achievement from an international perspective.

In the world of education, what is known about global student achievement and school leadership? First, two international testing programs provide reliable data on mathematics, science, and reading achievement of students that can be used to compare student performance by participating countries. For example, one international testing program, PISA, assesses skills and knowledge of 15-year-old students to determine how equipped students are “for full participation in society” (<http://www.oecd.org/pisa/aboutpisa/>). From the assessment data collected from both PISA and TIMSS over the last decade, educators find extreme variances in student readiness for global engagement. The concept of globalization advanced in Friedman’s book, *The World is Flat: A Brief History of the Twenty-First Century* (2007), posited: “The playing field has been leveled” (p. 7). However, the playing field in education is not level, as evidenced by the global problem of disparity in student achievement.

As far as school leadership effectiveness across the globe, very little is known about the school leader’s role in student achievement from a culturally contextual perspective. Much of what is known about leadership effectiveness emanates from leadership studies in business and industry. Researchers House and his colleagues (2007) and Kouzes and Posner (2007) have advocated that universal truths about leadership transcend to leaders in schools and other disciplines across societal cultures. The GLOBE studies produced views and perspectives of what universally constitutes good and bad leadership. Most societal clusters, for example, accept that leaders will demonstrate integrity and interpersonal abilities. However, the GLOBE researchers also found that leadership occurs in situational contexts and within cultures, and culturally contingent differences were found to influence conceptualizations of leadership.

Therefore, the investigators of this study were challenged to identify a way to approach an exploratory study on global school leadership and student achievement. The GLOBE research yielded a means by which to begin, as House and colleagues (2007) identified six universal leadership dimensions as a gateway to assess different ways in which various cultural clusters view leadership. Facing one of major challenges of cross-cultural research, that of research methods, the researchers made the decision to explore the relationship between global achievement and leadership dimensions, using TIMSS and PISA data to represent the student achievement variable and GLOBE’s six universal leadership dimensions.

In this paper, the authors first present a brief background of the literature on cross-cultural leadership research and global student achievement. Then, the authors present methods and findings from this study, followed by a brief discussion. While the investigators recognize limitations imposed by the variables of the study, this paper serves as a precedent to a preliminary exploration of the relationship between global school leadership and student achievement.

2. Cross-cultural Leadership Research and Global Student Achievement

Since World War II there has been a dramatic increase in globalization throughout the world. Globalization has created a need for leaders with greater understanding of cultural differences and increased competencies in cross cultural communication and practice. Culture is defined as the commonly shared beliefs, values, and norms of a group of people. In the past 30 years, many studies have focused on identifying various dimensions of culture. The best known is the work of Hofstede (1980, 1991, 2001), who identified five major dimensions:

power distance, uncertainty avoidance, individualism–collectivism, masculinity–femininity, and long-term–short-term orientation.

Expanding on Hofstede’s work, House and his colleagues (2004) delineated additional dimensions of culture such as in-group collectivism, institutional collectivism, future orientation, assertiveness, performance orientation, and humane orientation. After many years in development, the work of Dorfman, House, and more than 150 colleagues (The Globe Foundation, 2006) around the world resulted in the Global Leadership and Organizational Behavior Effectiveness Project (GLOBE Project). The Globe researchers described leader effectiveness as contextually embedded in the values and norms of people within a society, identifying 35 leader characteristics that are described as “culturally contingent.” From the study of over 17,000 business and financial leaders in 62 countries, the GLOBE Project also yielded 21 universally desirable and undesirable characteristics of effective leaders across all cultures, which they grouped into six universal leadership dimensions. Given that the GLOBE research team described universal characteristics and behaviors that account for a leader’s effectiveness, or lack thereof, across all cultures, the researchers of this study decided to use these universal leader dimensions to study their relationship with student achievement.

As part of the GLOBE research team, House and Javidan (2004) identified the six dimensions as: charismatic/value-based, team-oriented, participative, humane-oriented, autonomous, and self-protective leadership. As universal dimensions, these six dimensions provide a common ground to study perceptions of leadership across cultures.

- Charismatic/value-based leadership refers to the capacity to inspire, to motivate based on strongly held core values. The behaviors are those of a visionary, inspirational leader, one who is trustworthy and performance-oriented.
- Team-oriented leadership includes the capacity for team building and encouraging a common purpose among team members. The behaviors are those of a collaborative, nonmalevolent leader, one who is integrative and diplomatic.
- Participative leadership refers to the capacity to involve others in decision-making. The behaviors are those of a nonautocratic leader, one who seeks to make and implement decisions with others.
- Humane-oriented leadership involves the capacity to be compassionate and generous. The behaviors are those of a supportive leader, one who is modest and sensitive to others.
- Autonomous leadership reflects the capacity to lead individually and independently. The behaviors are those of an autocratic leader.
- Self-protective leadership encompasses being self-centered, status conscious, and procedural. The behaviors are those of a face-saving leader, one who will ensure his or her own security, or from a group-protective style, one who will ensure the safety of the group.

One of the criticisms of the GLOBE research is that they conceptualized leadership based on perceptions of leadership from 17,300 middle managers in the food processing, financial services, and telecommunications services industries (Northouse, 2013). The six dimensions were framed from perceptions and implicit beliefs that individuals have about leaders, not specifically about what leaders do. GLOBE data were not collected from leaders in educational organizations. However, the research team’s justification for using the GLOBE leader dimensions is the argument that these dimensions represent universal principles, or behaviors and characteristics, that were perceived culturally as “leadership.” Even though data were collected from those in mid-management in business industries and not the educational industry, the findings provide a common metric to study leadership across societal cultures.

The idea that these dimensions might also be related to how school leadership is viewed is the assumption of this study, with some basis on which to make the assumption. From an Anglo cultural perspective, Richardson and Lane (1996) polled 1,225 teachers from four states in the United States and asked: “What are the characteristics of principals that make them leaders?”

The findings of Richardson and Lane’s (1996) survey indicated correlation between traits that are valued in both business and education. This study also reflects the findings of Kouzes and Posner (2007) who describe leaders, across different industries, professions, and countries, with similar behaviors and practices. Many researchers (Lord & Maher, 1991; Northouse, 2013; Yukl, 1999) have emphasized that leadership occurs in context and under conditions of the expectations of followers and organizational culture, but they also cite universality of some behaviors and characteristics across cultural contexts. It makes sense that education would be reflected within cultures, which would pose little difference in leadership as perceived by those in other institutions.

Given that the GLOBE research team reported empirical evidence of universal leadership dimensions as a way to understand how leadership is perceived across societal cultures, the researchers of this study decided to frame this exploratory study of the relationship of leadership and student achievement around one overarching question: Does the way a global society views leadership have a relationship with student achievement?

3. Methods

This study was designed as an exploratory study to determine the relationship between universal leadership dimensions and student achievement from a global perspective. The researchers sought to determine whether universal leadership dimensions identified in the GLOBE research were associated with student achievement as measured by international student achievement scores from PISA and TIMSS data.

The data used to represent the variables for this descriptive study were from the GLOBE research, the TIMSS database, and the PISA database. To study the association between leadership and student achievement, the researchers first identified the six universal culturally-endorsed leadership dimensions reported in the GLOBE research by societal culture. These six dimensions do not describe outstanding leadership, but rather describe the views of how cultures distinguish effective leadership. The dimensions are: charismatic/value-based, team-oriented, participative, humane-oriented, autonomous, and self-protective leadership. The societal cultures, including the countries that constitute the cluster, in the GLOBE studies were:

- Anglo: Australia, Canada, England, Ireland, New Zealand, South Africa (White sample), United States
- Germanic: Austria, Germany, the Netherlands, Switzerland (German speaking)
- Latin Europe: France, Switzerland (French speaking), Israel, Italy, Portugal, Spain
- Eastern Europe: Albania, Georgia, Greece, Hungary, Kazakhstan, Poland, Russia, Slovenia
- Southeast Asia: India, Indonesia, Iran, Malaysia, Philippines, Thailand
- Middle East: Egypt, Kuwait, Morocco, Qatar, Turkey
- Confucian Asia: China, Hong Kong, Japan, Singapore, Taiwan, South Korea
- Sub-Saharan Africa: Namibia, Nigeria, South Africa (Black sample), Zambia, Zimbabwe
- Latin America: Argentina, Bolivia, Brazil, Colombia, Costa Rica, Ecuador, El Salvador, Guatemala, Mexico, Venezuela;

- Nordic Europe: Denmark, Finland, Sweden.

The researchers excluded countries where both TIMSS and PISA scores were not reported. The non-examined countries in each societal cluster did not participate in international testing. The researchers excluded the Sub-Saharan Africa cultural cluster, as there were no countries in this cluster that participated in international testing.

To perform the correlational study, first, countries were grouped into three clusters based on their rankings of the value of each universal leadership dimension. For example, on the *charismatic/value-based dimension*, if a country ranked that dimension as 1, 2 or 3, they were in the first group (LOW) and if they ranked it 8, 9 or 10 they were in the last group (HIGH). The rest of the countries (ranks of 4 through 7) comprised the middle group. Thus, the first group of countries are those that most value a dimension and the last group of countries are those that least value that dimension. The following table represents the value rankings of the 6 leadership style dimensions by cultural cluster:

Table 1: Grouping of Culturally Endorsed Leadership Dimensions

Leadership Dimension	Societal Value Dimension Most (1)	Societal Clusters that the Dimension Moderately (2)	Societal Clusters that Value the Dimension Least (3)
Charismatic/value-based	Anglo; Germanic; Nordic Europe	Latin Europe; Southeast Asian; Confucian American	Eastern Europe; Middle East
Team-oriented	Southeast Asia; Confucian Asia; Latin America	Latin Europe; Nordic Europe	Eastern Europe; Anglo; Germanic; Middle East
Participative leadership	Anglo; Germanic; Nordic Europe	Latin Europe; Latin America	Eastern Europe; Southeast Asia; Middle East; Confucian Asian
Humane-oriented leadership	Anglo; Southeast Asia	Germanic; Latin Europe; Middle East; Confucian America	Eastern Europe; Nordic Europe
Self-protective leadership	Southeast Asia; Middle East; Confucian Asia	Latin Europe; Latin America	Eastern Europe; Anglo; Germanic; Nordic Europe
Autonomous leadership	Germanic; Eastern Europe; Confucian Asia	Anglo; Southeast Asia; Nordic Europe	Latin Europe; Middle East; Latin America

3.1 Analysis

The relationship between the leadership dimensions and student achievement was analyzed in two ways. First, correlations between the leadership style rankings and the average achievement scores were established.

Second, the researchers conducted an ANOVA to study the relationship of leadership dimensions and student achievement. These groupings were then used to represent a fixed factor in an ANOVA analysis of each of the achievement variables. The achievement variable was the average reported value of the PISA and TIMSS scores available for each country. Due to the fact that average scores were used and the number of students in each country used to form the averages was not available and thus not weighted to account for the variable, this analysis should be considered exploratory.

3.2 Results

It should be observed that, with the correlations between cultural leadership dimension scores and international standardized achievement scores, higher scores represent less value of that style so negative correlations indicate higher achievement scores are associated with higher value rankings. The data suggest that the charismatic/value-based orientation score has a significant negative correlation with the PISA–Reading score. Likewise the data suggest that the autonomous leadership orientation score has a significant negative correlation with all three international achievement measures. However, the data suggest that the protective leadership score has a significant positive correlation with the PISA–Reading score.

These initial correlation results prompted the researchers to calculate ANOVAs to further investigate relationships and/or predictors of international student achievement data with the leadership dimensions as defined in GLOBE studies.

3.2.1 Mean Achievement Scores by Leadership Dimension.

The leadership dimension scores were recoded into High (8-10), Medium (4-7) and Low (1-3). Mean scores on the achievement measures for each of these groups were calculated, and correlations were established as follows:

- ANOVAs for Charismatic/values based Leadership Style demonstrated a significant difference between groups on the TIMSS and PISA-Reading.
- ANOVAs for Participative Oriented Leadership Style showed a significant difference between groups on both PISA-Reading and PISA-Math.

- ANOVAs for Autonomous Oriented Leadership Style showed significant difference between groups on TIMMS, PISA-Reading, and PISA-Math.
- ANOVAs for Self-or Group-Protective Oriented Leadership Style showed a significant difference between groups on PISA-Reading and PISA-Math.
- See Table 2 for a summary of significant findings.

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Table 2: Summary of Significant Findings

Leadership Orientation	Correlations	ANOVA
	Leadership Orientation / PISA-Reading / PISA-Math	Leadership Orientation / TIMSS /PISA-Reading / PISA-Math
Charismatic/ value-based	Negative Correlation with PISA-Reading scores	Significant difference between groups on TIMSS and PISA-Reading
Team		
Participative	Positive Correlation with PISA-Reading	Significant difference between groups on both PISA-Reading and PISA-Math
Humane		
Autonomous	Negative correlation with PISA-Reading, PISA-Math, and TIMSS	Significant difference between groups on TIMSS, PISA-Reading and PISA-Math
Self- Group Protective		Significant difference between groups on PISA-Reading and PISA-Math

4. Discussion

As an exploratory study, the researchers observed several interesting relationships in the ways that cultural clusters conceptualize leadership and student achievement within the clusters. ANOVAs established that four of the leadership approaches were found to be significant in predicting student achievement. For example, the findings indicated that charismatic/value, participative, autonomous, and self-protective styles of leadership predict student achievement, while humane and team styles were not found to be related to student achievement. Even though, across all 62 countries of the GLOBE study, all cultures see all six dimensions as substantially contributing to leadership, those that approach leadership with a higher regard of a charismatic/value-based conceptualization and an autonomous conceptualization seem to generate higher student achievement. Initial findings indicated that societal clusters who exceedingly value participative and self or group protective approaches to leadership have little or negative impact on student achievement.

In considering the relationship of leadership and variance in student performance, results suggest that charismatic/value-based conceptualization of leadership, for example, inspires student achievement. For example, at the level of the ten societal clusters, the Anglo cluster most positively associated charismatic /value-based leadership with leader effectiveness, whereas the Middle East cluster least associated charismatic /value-based orientation with outstanding leadership. In observing average scale scores from the 2009 administration of PISA to students in countries within these two cultural clusters, Middle Eastern countries who participated in PISA reported average scale scores of 407, compared to the average scale score of 504 in the Anglo cultural cluster. One of the characteristics of the charismatic/value-based leadership approach is a strong performance orientation; therefore, it is not surprising that leading with values and a results-orientation style contributes to positive outcomes. If results matter in leadership, then the laser-focus on generating positive results is to be expected.

In another interesting observation, the Confucian Asia cluster, which basically holds a self-protective, team oriented, and humane oriented style of leadership in high regard, had the highest scale scores on the PISA, but two of the predominant ways they conceptualize leadership, team and humane, were not found to be related to student performance. Furthermore, the protective approach to leadership, which was related to student performance scores, seemed to suggest a negative correlation. The more a cultural cluster conceptualizes leadership from a protective perspective, the lower the achievement. However, the achievement scores from the Confucian Asia cluster are among the highest in the world. These findings may suggest that students within the Confucian Asia cluster are self-motivated to achieve, and presence or absence of leadership style is inconsequential.

The autonomous approach to leadership, held in highest regard in the Germanic, Eastern European, and Confucian Asia clusters, was also related to positive outcomes of higher student achievement. Again, the suggestion that approaching leadership from an independent perspective is related to higher student achievement. The relationships of achievement and leadership seem to suggest that high achievement is a product of a cultural disposition to be self-motivated and independent, securing one's own position in the culture by working hard to achieve.

While these generalizations stimulate some discussion about how leaders and culture influence educational improvement, the fact remains that leadership and achievement are situational. How a culture approaches leadership certainly conveys values and beliefs about life, and education is largely a human enterprise, influenced by those values and beliefs. In a broad sense, the authors of this study discovered that how a cultural cluster views leadership matters in student achievement.

In brief, the correlations generate more questions about how school leadership is viewed within cultures as compared to leadership in business and industry. By studying leadership characteristics of principals/headmasters, researchers may provide a useful portrayal of how educators around the world conceptualize leadership. More importantly, they may learn more about the leadership process and how it is influenced by culture and how it influences effectiveness of schools. By exploring the relationship of school leader behaviors and student achievement, researchers place a spotlight on school leaders and how they view their leadership as contributory to student academic performance.

5. Summary and Conclusions

With a desire to conduct and coordinate research that spans diverse cultural environments and school leaders within those environments, the researchers recognize that cross-cultural research is challenging and complex. Studying leadership in cultural context, both from a linguistic and methodological design perspective, presents problems. By administering the GLOBE instrument to school leaders, researchers could, first of all, establish the importance and value of leadership dimensions within cultural clusters, as reported by school leaders. By identifying the broad dimensions that are universal and the broad dimensions that are culturally contingent, researchers can generate an approach to understanding cross cultural school leadership. Data from such studies generate the possibility of understanding the diverse ways in which school leadership is perceived by educators from different regions of the world. The leadership dimensions also, by representing a broad range of leader behaviors, offer a passageway into the flat world and understanding the cultural context of leadership, as researchers seek to discover variances of school leader behaviors and influence of situational effects.

6. Dissemination

In reviewing the literature, it is apparent that the study of school leadership effectiveness from a global perspective poses many challenges (Zhao, 2010). Language barriers, accessibility to school leaders, and the need for large-scale coordination of researchers to undertake such a project led the investigators of this study to the Global Leadership and Organizational Behavior Effectiveness (GLOBE) research. The researchers are seeking research partners from around the globe to collaborate in collecting data for the next steps in this international project.

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The relation between education and economic crime: an assessment for Turkey

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Abstract

Crime has been perceived as a distortion in social rest and order since people had started living as a community and still keeps its importance. For that reason, societies have been trying to specify the reasons that drive people to commit crimes and to eliminate those reasons. Social sciences' concerns about the crime are generally limited to the reasons and the consequences of crimes, both theoretically and empirically. The fight against crime is crucial especially for its effects on social welfare. In this sense education level and welfare of a society is important for crime types and crime rates. Hereunder, convict statistics of age, education and occupation from justice statistics from Turkish Statistics Institute and their relation between economic crimes will be investigated. Since there are limited studies on crime for Turkey, this study is an expected contribution to the literature. Further, it is aimed to find connections between reasons of economic crime and age, education and occupation statistics and to prevent crimes by helping the policies of the fight for crime.

Keywords: Education, Crime, Economic Crime, Turkey

1. INTRODUCTION

Crime is a phenomenon which affects economic and social welfare of societies and is affected from economic and social welfare of societies as well. On the other hand, there are significant differences in crime types and formations and crime rates of all developing and developed countries. Economic, social, regional and demographic features of countries are important factors that create the difference in crime types, formations and rates. These differences in crime types and crime rates lead policy makers and different disciplines to focus on this area. As a result of developing world and globalization trends and advanced information technologies, crime types and especially economic crime types are getting diversified. In this scope, crime does not necessarily mean causing damage or using violence against human. Economic crimes should also be remembered as they cause damage to property rather than human life. Accordingly, theft, forgery, embezzlement, extortion, fraud, check and bond crimes, bribery, identity theft, online fraud, money laundering, intellectual property theft, software piracy etc. take place in the type of economic crimes which are committed to property. Factors leading people to commit crimes and economic crimes differ by countries. Economic structure of a country is a very important factor for crime formation and also educational levels, migration and urbanization, unemployment, income and expenditure distribution, poverty, wage level and such socio-economic factors are effective on crime rates and types. In this scope, education has a particular importance in all socio-economic factors. In this scope, the aim of this study is to investigate the education and economic crime relation in specific to Turkey. For this purpose, in the first chapter education and economic crime relation is summarized in the scope of theoretical and empirical literature. In the second chapter, materials, method, objective and the importance of the study are explained and

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general view of economic crimes in Turkey and demographic features of economic offenders are analyzed. In the last chapter, educational level of offenders are analyzed in the scope of economic crimes in specific to economic crime/s in Turkey.

2. EDUCATION AND ECONOMIC CRIME RELATION: THEORETIC AND EMPIRICAL LITERATURE

There are significant differences in crime types, formations and crime rates in all countries, especially the underdeveloped ones and in every society. There is a close relation between the reasons of these differences and economic, social, regional and demographic features of countries. This difference in crime types and crime rates leads policy makers and different disciplines to focus on this area. In the literature, there are many studies investigating the effect of economic and demographic factors on crime rate in a society. Not only economics but also different disciplines such as sociology, psychology and criminology investigate the motives and develop policies for factors pushing people into crime. In this scope, "crime" does not necessarily mean causing damage or using violence against human. Economic crimes should also be remembered as they cause damage to property rather than human life. Accordingly, theft, forgery, embezzlement, extortion, fraud, check and bond crimes, bribery, identity theft, online fraud, money laundering, intellectual property theft, software piracy etc. take place in the type of economic crimes which are committed to property (Akdeniz and Öcal, 2011: 140).

Economic crime is defined as; "acts that are not recorded and out of the control of public authority and punished as they are committed in defiance of laws enacted to protect public order". However, the question of which crimes can be regarded as economic crime is being discussed in the literature. Demirbaş (2005) state that in order to define a crime as an economic one, it should have some specific features. Accordingly; "to define a crime as an economic one, an economic officer should commit a criminal offence and this offence should be committed in a practice and should be abuse of confidence." (Akdeniz and Öcal, 2011: 140). In another definition, economic crimes are defined as "white collar crimes". Accordingly, white collar crimes refer to crimes related to the profession and business world. However, this term was valid until 1940s and now there is a need for a new and modern definition. According to modern definition, economic crime can be defined as ;"an illegal action committed by professional people or those with technical skills with the purpose of gaining personal or organizational income or acquiring illegally against other persons and units by means of misleading or making false statements". In order to comprehend the term of economic crime, we should take a look at types of economic crime. As a result of developing world and globalization trends and advanced information technologies, economic crime types are getting diversified. According to statistics on global scale and predictions, especially embezzlement, bribery, fraud, misuse of assets etc. comprise a great part of economic crimes. Moreover, as a result of globalization and advanced information technologies, economic crime types are reaching different dimensions. Today, identity theft, online fraud, money laundering, intellectual property theft, software piracy and hacking and such crime types are included in economic crimes. From this aspect, new economic crimes and opportunities increase and start to find new dissemination areas overseas (Güvel, 2005: 29-31).

There are different approaches on crime and crime factors which affect economic and social welfare of societies and are affected from economic and social welfare of societies as well. The approach which explains crime especially in economic level is Becker (1968)'s approach which is also developed by Ehrlich (1973) later. This approach is shaped according to cost-benefit analysis. Economic theory models developed by both Ehrlich and Becker, mostly explains crimes committed against property. According to this model, a person decides to commit

a crime following a cost-benefit analysis. Accordingly, the person compares the income to be acquired by the crime and the punishment to be sentenced in case of being caught. At this point, the income that the person will acquire if s/he is not caught is the benefit and the punishment s/he will be sentenced to if s/he is caught is the cost (Becker, 1968; Ata, 2011: 119). Pursuant to this comparison, the person will decide whether to commit the crime or not (Ehrlich, 1973; Raphael and Winter- Ebmer, 2001; Pazarlıoğlu and Turgutlu, 2007: 2). According to the model, if the benefit is bigger than the cost, the person will decide to commit the crime. In this theoretical model created by Becker and developed by Ehrlich, it is pointed out that gain structure, employment opportunities and skills to participate in labour force are important factors in criminal tendency (Cömertler and Kar, 2007: 3). In the literature, there are many theoretic and empirical studies investigating the reasons behind committing crime and economic crime. Economic models on this issue are based on models developed by Fleisher (1963), Becker (1968) and Ehrlich (1973) (Scorcu and Cellini, 1998: 279; Cömertler and Kar, 2007: 2-3; Alcan and Şahin, 2011: 4). Although economic structure of a country is an important variable that explains the crime, it is not sufficient alone. Apart from economic structure, educational levels, migration and urbanization, unemployment, income and expenditure distribution, poverty, wage level and such socio-economic factors are effective on crime rates and types. Education, as the origin of all other reasons, has a particular importance in all socio-economic factors (Tsushima, 1996: 500-505; Cömertler and Kar, 2007: 5-8; Scorcu and Cellini, 1998: 208). According to Entorf and Spengler (2000), market conditions, crisis, inflation, poverty, wages and unemployment are important factors in economic crimes or crimes committed against property (Entorf ve Spengler, 2000: 77-78). As is known, social harmony and order is possible only when people act in line with the expectations of society. In this scope, people can give right reactions to expectations with proper behaviors only by means of education. In this scope, education is not only an important socializing tool but also has an important function in relationship and behavior formations (Kızmaz, 2004: 292). It is possible to evaluate the relation between education and crime from different perspectives. Primarily, education supports conscious formation in a certain level. In this way, social awareness increases the commitment of individuals to society and helps them to exhibit behaviors in line with social expectations. In addition, education is not sufficient alone. The level of education is of importance to explain the crime and education relation. Accordingly, as educational level increases, crime rates and especially rates of economic crimes committed to property decrease. However, what is stated here is the fact that as educational level increases, the possibility to commit a crime tends to decrease. It should be accepted that high level of education is not a factor preventing crime alone. Another factor to discuss about the crime and education relation is school. In the literature, studies conducted on crime and school relation focus on factors such as academic success, attitudes towards school, educational system, attitudes of school management towards children, school environment, relationships among students, sense of discipline of school management, success level and exam marks, frequency of truancy and dismissal from school. Accordingly, apart from education and educational level, these variables should also be considered to determine the crime and education relation in terms of criminalism (Kızmaz, 2004: 293-295). While crime and education relation is investigated, in the literature, it is emphasized that educational level that the profession requires and profession quality are effective in committing crime. La Free and Drass (1996), state that the possibility of those having a quality profession is low (La Free and Drass, 1996: 615). In addition, Braithwaite (1989) reveals that young people having high level of education and a professional aim commit crimes less than others (Braithwaite, 1989: 1). Locher (1999), developed a two-stage model through which people decide to allocate their times to working, education and committing crime. Accordingly, education reduces the crime rates of adults and a negative relationship occurs between committing crime and wages as age increases. The increase of wages for qualified labor force in market increases crime tendency of young people. On the other hand, as quality level increases, possibility to commit crime decreases for adults. Another important findings of Locker (1999)'s study is the fact that tendency of young people in the age group of 14-25 to commit crime is higher. In this scope, it is pointed out that it is important to implement policies to prevent young people in this age group from crime. Lochner and Maretta (2001)

investigated the relationship between the benefit to be obtained from crime and the possibility of committing crimes. Accordingly, the possibility of committing a crime is as high as the benefit to be obtained from the crime. (Alcan and Şahin, 2011: 9-10). In their study analyzing the relationship between education and crime, Alcan and Şahin (2011) revealed that being illiterate increases the rate of crime against property and as the educational level increases, levels of committing crime decrease (Alcan and Şahin, 2011: 23).

3. MATERIALS AND METHADODOLOGY

3.1. Objective and Importance

The objective of this study is to analyze the relationship between economic crime and education. For that purpose, demographic data related to the convicts between the years of 1990-2011 in Turkey which takes place in justice statistics in official web site of Turkish Statistical Institution is used. In this scope, demographic profile of crime in Turkey is created through demographic features such as age, gender, educational level, marital status and occupation specific to theft, embezzlement, bribery, forgery and fraud crimes which are defined as economic crimes and the relationship between crime and education in Turkey is explained.

3.2. Methodology

As the aim is to explain the relationship between crime and crime types and educational levels of people sentenced due to economic crime between the years of 1990-2011, in this study relationships between age, marital status, educational level and occupation and the crime types are investigated by means of descriptive analysis. In this way, the relationship between crime type and educational level of the convicts is investigated. While obtaining the data of people sentenced in 1990-2011 period, justice statistics in official web site of Turkish Statistical Institution are used.

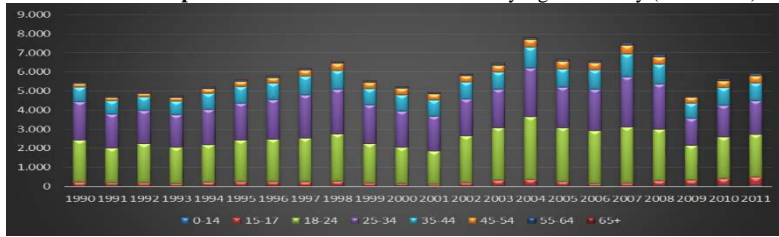
3.3. General View of Economic Crimes in Turkey

It is possible to investigate the distribution of economic crime types in Turkey between the years of 1990-2011 in total and by genders through the graphs below. 96.4% of 5.938 offenders who committed the crime of theft in Turkey between the years of 1990-2008 were males and 3.6% of them were females. Analyzing this relation by years, it can be said that the sentence rate of male offenders for theft is higher than the rate of females. In terms of embezzlement, similar results can be obtained. 96.4% of 213 offenders who committed the embezzlement crime between the years of 1990-2008 were males and 3.6% of them were females. Analyzing this relation by years, it can be said that the sentence rate of male offenders is higher than the rate of females. 97.74% of 5.290 offenders who committed the fraud crime between the years of 1990-2008 were males and 2.3% of them were females. Analyzing this relation by years, it can be said that the sentence rate of male offenders for fraud is higher than the rate of females. In average 1.721 crimes of forgery were committed between the years of 1990-2008. 97.6% of 5.290 offenders who were sentenced for fraud were males and 2.4% of them were females. Analyzing this relation by years, it can be said that the conviction rate of male offenders is higher than the rate of females.

3.4. Demographic Features of Economic Offenders in Turkey

Demographic features of economic offenders in Turkey can be summarized by age, marital status and occupation as follow: Between the years of 1990-2011, 34.7% of those who were sentenced for an economic crime were in the age group of 25-34. For the same period, 24.1% of them were in the age group of 35-44. 23.6% of them were people in the age group of 18-24. The rate (6.0%.) of those aged 65 and over was very low.

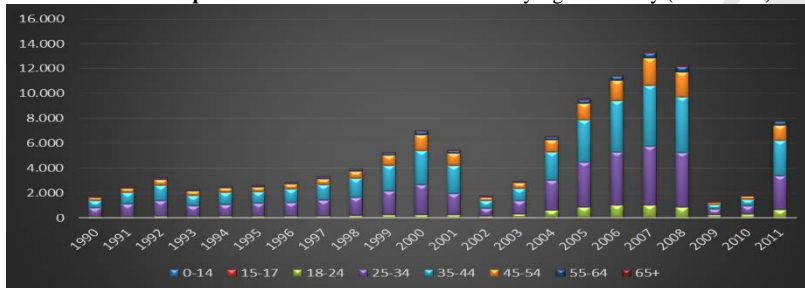
Graph 1: Distribution of Theft Convicts by Age in Turkey (1900-2011)



Source: Turkish Statistical Institute, Official Web Site Justice Statistics (1990-2011)

In terms of the types of crime, during that period 39.2% of theft convicts were in the age group of 18-24 and 34.2% were in the age group of 25-34.

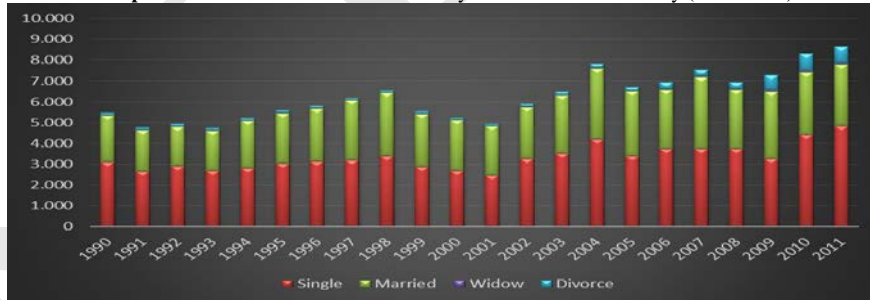
Graph 2: Distribution of Fraud Convicts by Age in Turkey (1990-2011)



Source: Turkish Statistical Institute, Official Web Site Justice Statistics (1990-2011)

Distribution of fraud convicts varies by age. According to analysis results; 37.2% of fraud convicts were in the age group of 25-34 and 36.1% were in the age group of 35-44. This rate (0.7%) is very low for those aged 65 and over. Between the years 1990-2011, 59.8% of those sentenced for an economic crisis were married and 35% of them were single.

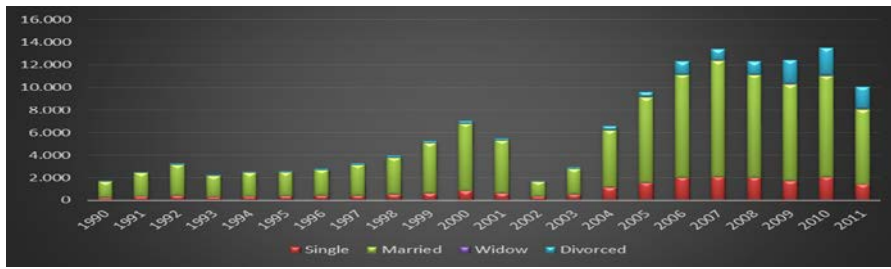
Graph 3: Distribution of Theft Convicts by Marital Status in Turkey (1990-2011)



Source: Turkish Statistical Institute, Official Web Site Justice Statistics (1990-2011)

The relationship between economic crime types and marital status is determined through theft and fraud which are most frequent crime types. Accordingly, results are different for the relationship between fraud and marital status. Accordingly, 79% of 137.286 fraud convicts were married and 14.6% of them were single.

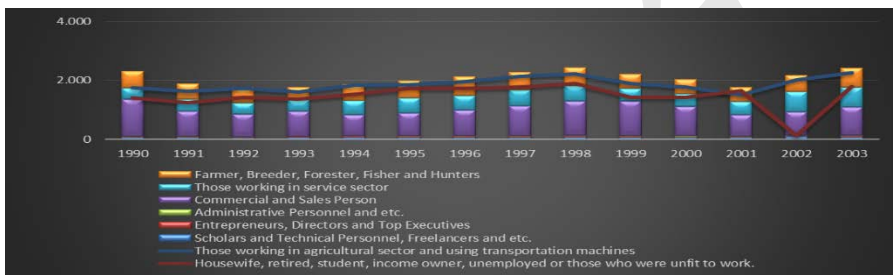
Graph 4: Distribution of Fraud Convicts by Marital Status in Turkey (1900-2011)



Source: Turkish Statistical Institute, Official Web Site Justice Statistics (1990-2011)

Analyzing people sentenced for economic crime(s) by occupation, we can obtain following results. 34.8% of 5.404 theft convicts between the years of 1990-2003 were those working in agricultural sector and using transportation machines; 26.7% were housewife, retired, student, income owner, unemployed or those who were unfit to work. 24.3% of 5671 people sentenced between the years of 2004-2011 were craftsmen and those working in related areas; 24.1% of them were housewife, retired, student, income owner, unemployed or those who were unfit to work.

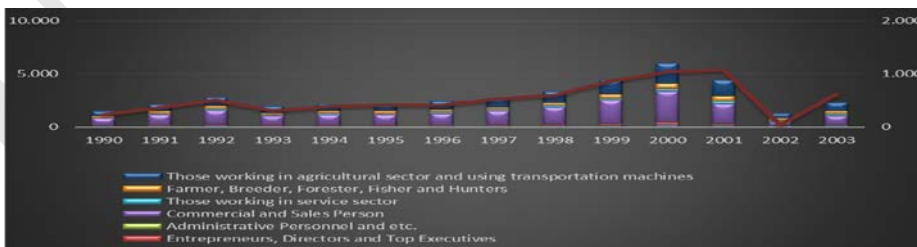
Graph 5: Distribution of Theft Convicts by Occupation in Turkey (1900-2011)



Source: Turkish Statistical Institute, Official Web Site Justice Statistics (1990-2011)

Results for fraud within same years are also similar. 37.7% of 3346 fraud convicts were commerce and sales personnel; those working non-agricultural sectors and using transportation machines ranked number two with the rate of 26.8%.

Graph 6: Distribution of Fraud Convicts by Occupation in Turkey (1900-2011)

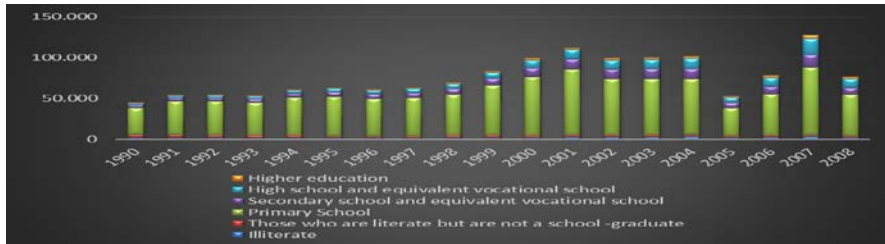


Source: Turkish Statistical Institute, Official Web Site Justice Statistics (1990-2011)

3.5. Economic Crime and Educational Relation in Turkey

Analyzing people sentenced for economic crime(s) by educational level, we can obtain following findings; 61% of people sentenced for economic crime between the years of 1990-2011 were primary school graduates. High school graduates (12.2%) and secondary school graduates (10.5%) ranked the second and third ranked number two and three respectively. University graduates had the lowest rate with 3.4%

Graph 7: Distribution of Economic Offenders by Educational Level in Turkey (1990-2008)



Source: Turkish Statistical Institute, Official Web Site Justice Statistics (1990-2008)

Analyzing people sentenced for economic crime(s) by educational level and gender, we can obtain following findings; 62.2% of 64.185 males sentenced for economic crimes between the years of 1990-2008 were primary school graduates. Crime rate of illiterate males is very low (2.2%).

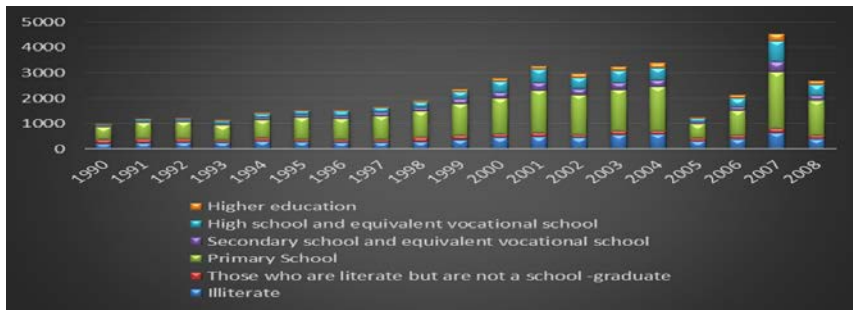
Graph 8: Distribution of Male Offenders by Educational Level in Turkey (1990-2008)



Source: Turkish Statistical Institute, Official Web Site Justice Statistics (1990-2008)

44.9% of 1.863 females sentenced for economic crimes between the years of 1990-2008 were primary school graduates; 15.6% of them were illiterate. Comparing the results with those of males, no significant difference is found.

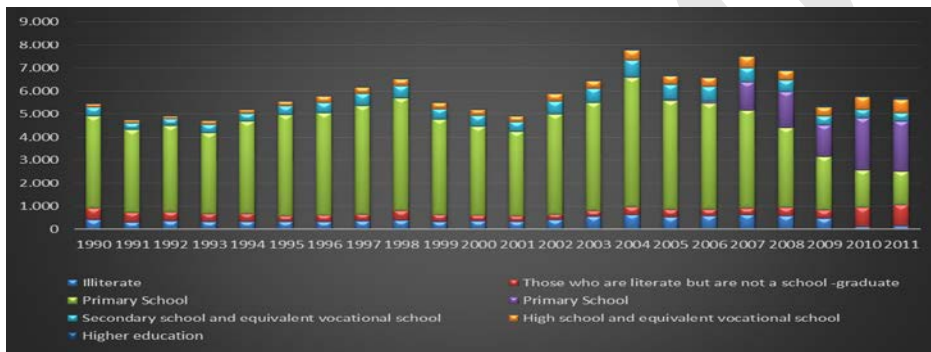
Graph 9: Distribution of Female Economic Offenders in Turkey by Educational Level (1990-2008)



Source: Turkish Statistical Institute, Official Web Site Justice Statistics (1990-2008)

As the educational level of female and male increases, crime rate falls. Analyzing the relationship between economic crime types and educational level, we can say that the crime type is directly related to education.

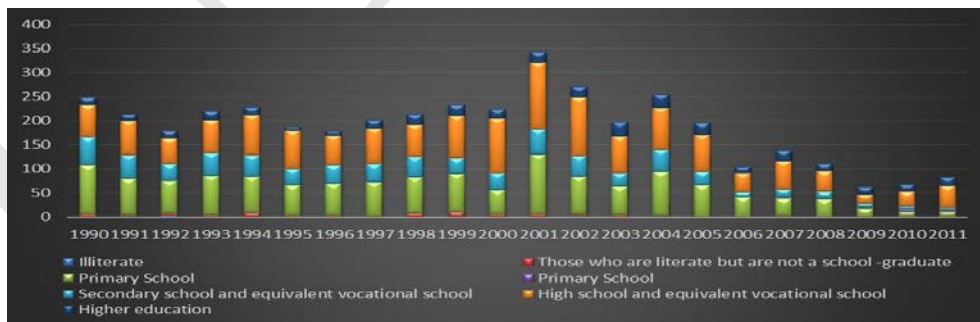
Graph 10: Distribution of Theft Convicts by Educational Level in Turkey (1990-2011)



Source: Turkish Statistical Institute, Official Web Site Justice Statistics (1990-2011)

According to the certain period of time, 73% of 129.99 theft convicts were primary school graduates. However, analyzing the embezzlement convicts by educational level, we can reach different results. Accordingly;

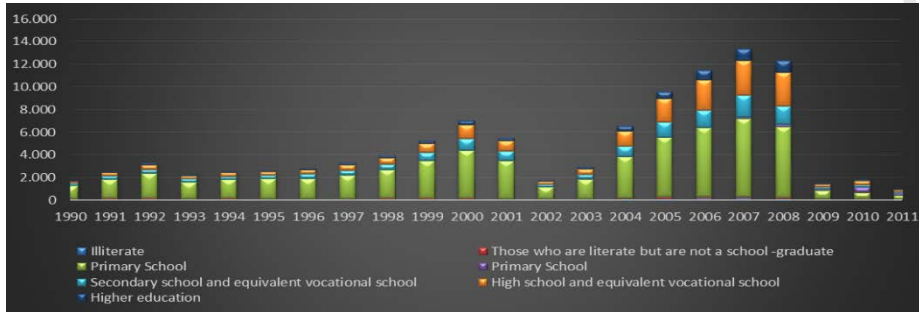
Graph 11: Distribution of Embezzlement Convicts by Educational Level in Turkey (1990-2011)



Source: Turkish Statistical Institute, Official Web Site Justice Statistics (1990-2011)

38% of 4.154 embezzlement convicts were high school graduates and 31.5% of them were primary school graduates. Another important issue to point out is that the rate of university graduates among embezzlement convicts sentenced between 1990-2011 tends to rise. 6% of fraud convicts sentenced in 1990 were university graduates and this rate reaches 8.5% in 2000 and 21.7% in 2010.

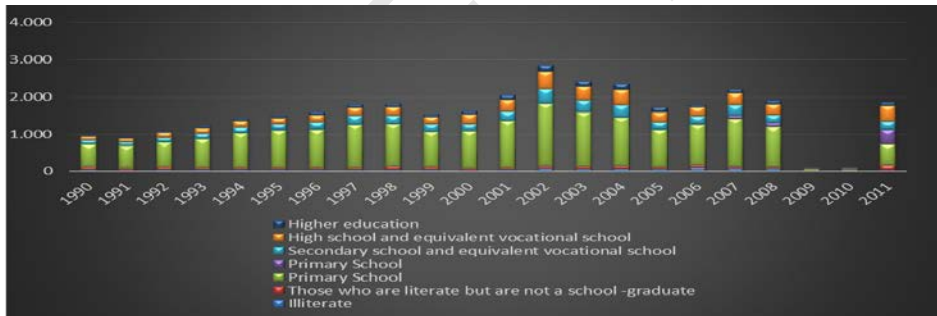
Graph 12: Distribution of Fraud Convicts by Educational Level in Turkey (1900-2011)



Source: Turkish Statistical Institute, Official Web Site Justice Statistics (1990-2011)

The number of fraud convicts between 1990-2011 was 104.793 in average. More than half of them (60.5%) were primary school graduates. High school graduates rank the number two with 16.7%.

Graph 13: Distribution of Bribery and Forgery Convicts by Educational Level in Turkey (1900-2011)



Source: Turkish Statistical Institute, Official Web Site Justice Statistics (1990-2011)

The number of fraud convicts was 34.741 in average. As in other economic crimes, most of bribery and forgery convicts were primary school graduates. Accordingly, 61% of bribery and forgery convicts were primary school graduates; 14.4% were high school graduates and 12.3% were secondary school graduates.

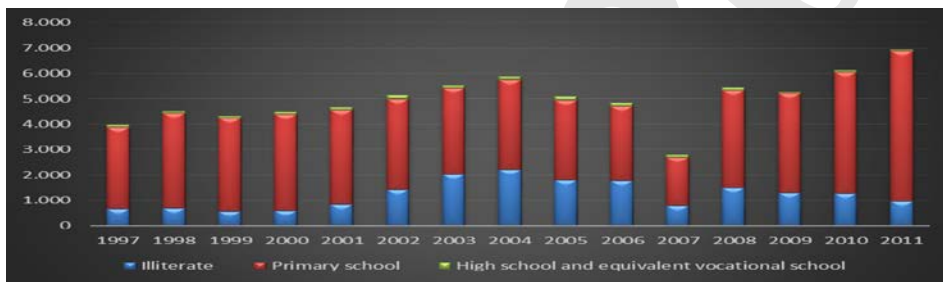
Analyzing the educational level of children in Penal Institution, we can see that most children are theft convicts. Analyzing children sentenced for economic crimes by educational level, we can see that the rate of primary school graduates, those who dropped out primary school, high school and equivalent vocational schools is high. In this study, the distribution within last five years is presented in Table 1.

Table 1: Distribution of Child Convicts in Turkey by Educational Level (2008-2012)

Years	Illiterate	Primary school dropout	Primary school graduate	High school and equivalent vocational school dropout	High school and equivalent vocational school graduate
2008	4,1	32,0	51,5	11,2	1,3
2009	5,2	33,0	49,8	11,2	0,7
2010	5,3	35,7	44,2	13,2	1,6
2011	7,3	35,5	47,0	8,9	1,2
2012	7,8	35,1	44,0	10,2	2,9

Source: Turkish Statistical Institute, Official Web Site Justice Statistics (2008-2012)

According to Table 1, averagely 47.3% of 15.242 children sentenced for economic crimes between 2008-2011 were primary school graduates and averagely 34.3% were those who dropped out the primary school. In addition, this rate is 10.9% for children who dropped out high school and equivalent vocational schools. Analyzing changes within the same period we can say that while crime rate of primary school graduates tends to fall; rate of children who dropped out primary school and high school and equivalent vocational schools tends to rise.

Graph 14: Distribution of Children Sentenced for Theft by Educational Level in Turkey (1900-2011)

Source: Turkish Statistical Institute, Official Web Site Justice Statistics (1997-2011)

Analyzing child convicts by crime type and educational level, we can see that the rate of theft convicts is high. Accordingly, 66.8% of 5.504 children sentenced for theft between 1997-2011 was primary school graduates and 22% of them were illiterate. This rate is very low for high school and equivalent vocational school graduates with 1.9%.

4. CONCLUSION AND ASSESSMENT

Studies conducted on crime in the literature emphasize that there is a close relationship between educational level and crime rate and it is observed that as educational level decreases, crime rate significantly rises. The study conducted on convicts sentenced for economic crimes in Turkey revealed that economic crime is a result of low educational level. When crime rates are assessed by educational level, it is found that 61% of convicts sentenced for economic crime were primary school graduates. High school and equivalent vocational school graduates (12.2%) and secondary school graduates (10.5%) ranked the number two and three respectively. The rate of university graduates is the lowest with 3.4%. In this scope, the fact that university graduates commit less crimes is another finding emphasized in studies on crime in the literature. This result supports the results of studies conducted in Turkey and abroad (Braithwaite (1989); LaFree and Drass (1996); Locher (1999); Kızmaz (2002);

Alcan and Şahin (2011)) In the scope of the study, economic crimes committed mostly are theft, fraud and bribery and forgery. According to the certain period of time, 73% of theft convicts were primary school graduates. However, analyzing the embezzlement convicts by educational level, we can reach different results. 38% of embezzlement convicts were high school and equivalent vocational school graduates and 31.5% of them were primary school graduates. Considering the fact that embezzlement is a crime based on qualified profession; the need of higher educational level to work in such professions explains why embezzlement convicts have higher educational level than theft convicts. Distribution of fraud convicts by educational level also has similar features. More than half of fraud convicts (60.5%) were primary school graduates. High school graduates rank the number two with 16.7%. It is found that economic crime rate of children who are primary school graduates is high similarly to the rate of adults. It is possible to say that as educational level rises, economic crime rate falls for children as well. Another findings of the study is the fact that the rate of primary school graduates, those who dropped out primary school, high school and equivalent vocational schools is high especially between the years of 2008-2012. In addition, we can say that there was a rise in crime rates of children who dropped out primary school and high school and those who were high school or their equivalents graduates in the same period.

To conclude, when the relationship between economic crime and education is analyzed, we can say that the rate of theft, fraud, bribery and forgery is high among both children and adults having education at primary school level. In this scope, as Kızmaz, 2004 emphasized in his study, by means of the rise of educational level, people exhibit conscious behaviors individually and socially, the awareness towards obeying legal, social laws and arrangements is raised and mentalities change and thus crime rates fall. When the relationship between economic crime and education is assessed for children, it is remarkable that the crime rate of those who are primary school graduates and those who dropped out primary school and high school and equivalent vocational schools is high. In this scope, low educational level and drop out leads people to be deprived of institutional discipline and to keep away from the interaction with social environment. All these problems cause children not to be able to raise awareness towards legal and social rules and laws. In such cases, awareness of children towards crime can be evaluated as a result increasing their tendencies and potentials to commit crime. Since the early ages when people started to live together, crime has been perceived as a problem disturbing social peace and order and it is still valid with new forms of crime occurring due to constant economic and social development. In this scope, to determine motives and develop main solutions and policies to prevent people from committing crime has been main objectives in all developed and developing countries, The most important factor pushing societies into combating with crime is probably the fact that crime affects the welfare level of societies. In this scope, educational and welfare levels of countries are very important factors affecting crime behaviors and rates in countries. In this framework, this study concludes that there is a close relationship between educational level and crime rates both for children and adults and as educational level decreases, crime rates significantly increases. In this scope, as it is known that education and educational investment are very important for economic growth and development, it is also clear that to implement educational policies is important as well to decrease crime rates. To develop and implement economic and social policies towards overcoming the education obstacle of adults and children, increasing educational investments to make people develop their personal skills and abilities and extending different education types will be a successful step to prevent people from committing crimes.

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The relation of the school effectiveness and the achievement motivation of the school age pupils

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Abstract

In our paper, we focused on the age specifications of the relation between school effectiveness and achievement motivation of school age children. In our research we worked with two basal variables: learning motivation measured by Kozeki's questionnaire and school effectiveness presented by mark in the Math. Our research was realised on the sample of 140 pupils of the elementary schools. We found the differences in the learning motivation in the relation with school effectiveness in the groups of the children in the age 10-11 and 12-13 years. The identified differences covered the affective, cognitive, effective dimensions of the learning motivation.

Keywords: school effectiveness, achievement motivation, school age pupils

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1. School effectiveness

We meet with the term effectiveness in various psychological contexts; especially within research of basic human needs, performance motivation with the connection to applied psychological explorations. In the area of school psychology the main subject of interest is the school effectiveness and its determination by children in all development stages.

School effectiveness is disputed a lot and still variable and insufficiently clarified term. It can mean: managing requests placed by school onto individual, which demonstrates itself in positive evaluation of pupil's results and/or a product of cooperation between teachers and pupils leading to achieve certain education goals (Průcha, Walterová & Mareš, 1995).

In relation to the term school efficiency, we can find one more term in professional literature and that is a school ability which assumes the connection of this term with performance. Based on this idea, Vágnerová (1997) states that the school is a place where the achieve level is verified using performance which is rated.

Hrabal (1989) defines both and sees them in the same way through mutual link. School effectiveness represents social evaluation of pupil's activity and its confirmation with school requirements; while on the other hand, the school ability is a complex of dispositions which conditions this activity. To be able to measure school effectiveness, we are supposed to discover the pupil's performance in individual school disciplines. Therefore school performance becomes an important component of pupil's school effectiveness.

Hrabal (1989) also states components which contribute to pupils' effectiveness in school: cognitive presuppositions, memory, learning style, motivation and auto-regulation processes. Learning motivation is characterized as a complex of dynamic and directional dispositions which essentially and individually influence pupil's school effectiveness. It lays in social, cognitive and performance personal needs and flows into complex of socio-psychic dispositions.

2. Achievement motivation

There are many theories which content is directly or indirectly related to human activity motivation. In relation to performance motivation, we can reduce the number of theories. Despite this effort there are too many to fully exhaust their content and extent. Therefore we pick from them the ones which from our point of view seem as key, basic. Namely, it is self-determination theory (Deci and Ryan), theory of cognitive dissonance (Festinger), theory of dual factor motivation (Herzberg), ARCS theory (Keller), hierarchy of needs theory (Maslow), theory of performance needs (McClelland), manifest of needs (Murray) (theories arranged in alphabetical order). In the next paragraphs, we will briefly introduce the contribution of these theories.

Self-determination theory (SDT) is considered to be the macro-theory of human motivation (Ryan & Deci, 2008). Its authors formulate it in close relationship with the development of personality, self-regulation, life aims and aspirations, vitality, unconscious processes, personal well-being and universal psychological needs. Ryan and Deci (2008) consider universal psychological needs, contributing to efficient operation and psychological health of a human the triad of needs, where they include the need for competence, need for autonomy and need for relationships. That means that except the freedom and social interactions the authors understand as the crucial need the need for production of quality performance.

Festinger (1957 in Harmon-Jones & Harmon-Jones, 2007) assumed that people are motivated by an unpleasant condition of dissonance to activation of "psychological work" which leads to reduction of inconsistency. The most common situation is the change of attitude in the cognitive sphere which are the most resistant to change. This means that the human effort is not to change those cognitive structures which would require "investment" of a high amount of energy and time and to stay in a stable condition. In light of performance activation this means that if we want to motivate a person we have to build on a positive personal setting and search for balance between different contexts.

Herzberg (2003) in his theory distinguishes activity motivators and satisfactors. He understands satisfactors as factors which cause dissatisfaction (he assumed that these are factors of environment). Motivators are understood as factors causing satisfaction (he assumed this is human activity). He identifies six motivators: responsibility, personal fulfilment, recognition, scope of work, personal growth and achieved performance. He therefore considers motivation to performance as one of the key factors of human activity.

Keller (2010) defines his ARCS motivation model through four dimensions: attention (A), relevance (R), confidence (C) and satisfaction (S). All variables are always saturated by three sub-dimensions. Attention is saturated by perception arousal, information arousal, and variability. Relevance is saturated by orientation to targets, choice of motives, confidence. Confidence is saturated by requirements on learning, opportunities of success, personal control. Satisfaction is saturated by inner strengthening, outer rewards, and justice. From the point of motivation to performance is important process side consisting of concentration on performance, understanding the importance of the task, personal well-being and personal gain from production of performance.

Maslow's theory of needs doesn't have to be specially introduced. Here we can just point out that motivation to performance is linked to social needs. Specifically it is related to the need for respect and self-esteem and need for self-realization. The need for self-realization is saturated by the existence of meaningful targets, saturating own potential. The need for respect and self-esteem comes from the feeling of own value gained by production of average to above-average performance (for which the person gains recognition from others) (Maslow, 1987).

McClelland (1961) assumed that human motivation consists of three dominant needs: the need for performance, need for power and need for affiliation. McClelland characterized people motivated to performance as being able to set high and unattainable aims, oriented towards personal performance and not towards recognition, desiring feedback based on evaluation of performance.

In Murray's manifest of needs we can find many needs out of hierarchy. The absence of system comes from the author's conviction that the human is motivated by more needs at once. We choose just some need from them: need for power, order, autonomy, aggression, love. The need to excel by high performance is understood by Murray as the need of individual high aspirations.

Learning motivation can be perceived as a specific part of performance motivation. We have selected Kozéki as a key representative of this perspective. His ideas are presented in chapter 3.

3. Method

The sample consisted of 140 participants whose average age was 12.6. They were the pupils of the elementary schools, concretely the pupils of the lower secondary education. The structure of research sample is inscribed in Table 1.

Table 1. The structure of the research sample according to location and class

Class	Elementary school			Total
	Veľká Lehota	Zlaté Moravce	Nitra	
5 th	-	-	15 (10.70 %)	15 (10.70 %)
6 th	13 (9.30 %)	18 (12.90 %)	-	31 (22.20 %)
7 th	-	-	14 (10.00%)	14 (10.00 %)
8 th	7 (5.00 %)	-	63 (45.00 %)	70 (50.00 %)
9 th	10 (7.10 %)	-	-	10 (7.10 %)
Total	30 (21.40 %)	18 (12.90%)	92 (65.70 %)	140 (100%)

In the research, we operated with two basal variables: school effectiveness and learning motivation. School effectiveness was represented by the mark of the Math, because (according to Vágnerová & Klégrová, 2008) the learning outcomes[†] of the Math are the best predictors of the self-concept and also the school effectiveness in the school age. This relation was confirmed in our earlier study (Malá & Čerešník, 2011). The goal was the differentiation of the pupils into two groups. The first group was the group of the successful pupils. Their mark from the Mathematics was 1 (means excellent) or 2 (means very good). The second group was the group the less successful pupils. Their mark from the Mathematics was 3 (means average) or 4 (means sufficient).

For the learning motivation diagnostics, we used Kozéki's questionnaire. The selection of this research method was inspired by the research of Čerešník (2012a) which was focused on learning motivation differences measurements in the different cultural contexts and also on age specifics of the learning motivation. Kozéki (1980) distinguishes three basic dimensions of learning motivation (affective, cognitive and effect) which he divides into sub-dimensions (we specify their description):

- A affective dimension – represents emotional relationship to people from the closest vicinity,
 - a1 emotional relationship to parents, effort to keep good relations with them,
 - a2 emotional relationship to educator, effort to keep trust of own idol, authority,
 - a3 emotional relationship to classmates, effort to gain and keep good feeling of belonging to class,
- C cognitive dimension – represents relationship to knowledge, possibility to develop own abilities,
 - c1 autonomy and independence, motives of individual reality recognition, trust in own powers,
 - c2 after-intellectual motivation, need for knowledge, competence, pleasure from cognitive process, influence of self-perfection motives,
 - c3 activity, interest as a main motive,
- E effect dimension – represents relationship to expectations of the environment, motivation influence of adopted norms and their harmony with own behaviour,
 - e1 motives, resulting from self-evaluation, from the effort to keep self-esteem; motives coming from tension between real and expected performance based on self-evaluation,
 - e2 motivation influence of adaptation to group, team regulations, influence of personal responsibility for team results; norms and values of surroundings are becoming main motives for learning,
 - e3 motivation influence of moral standards and value system in a given society, its evaluation opinion on learning; motives resulting from the effort to approach the norms of society, mutual ideal.

Kozéki in cooperation with Entwistle later revised the learning motivation dimensions which were categorized into three groups: affective-social motives represented by interactions with teachers and classmates, cognitive motives represented by activity, competence and moral motives represented by self-esteem, responsibility (Entwistle & Kozéki, 1986). The authors further defined the order of motives in Hungarian population. They are characterized as follows:

[†] Learning outcomes are explicitly defined expectations of the knowledge amount the students have to understand and apply after the process of the education. For more information see for example Verešová (2013), Verešová, Čerešník (2013).

Table 2. Differences in the learning motivation among the age groups of the pupils in the relation with their school effectiveness

		mark	10-11 years						12-13 years						14-15 years					
			N	AM	SD	SEM	U	p	N	AM	SD	SEM	U	p	N	AM	SD	SEM	U	p
learning motivation	a1	1.2	15	1.13	1.25	0.32	56.0	0.033	28	1.29	1.18	0.22	357.0	0.004	14	1.00	1.30	0.35	168.0	0.577
		3.4	14	0.00	1.30	0.35			42	0.38	1.23	0.19			27	1.22	1.16	0.22		
	a2	1.2	15	0.13	1.19	0.31	66.5	0.093	28	0.14	1.27	0.24	258.0	0.000	14	-0.21	0.98	0.26	159.5	0.422
		3.4	14	-0.64	1.28	0.34			42	-1.21	1.09	0.17			27	0.04	1.06	0.20		
	a3	1.2	15	0.60	0.83	0.21	63.5	0.070	28	1.32	1.12	0.21	329.0	0.001	14	0.79	0.70	0.19	170.0	0.615
		3.4	14	0.00	0.68	0.18			42	0.33	1.10	0.17			27	0.93	1.11	0.21		
	c1	1.2	15	0.80	0.94	0.24	60.5	0.051	28	0.57	1.03	0.20	407.5	0.025	14	0.07	0.83	0.22	177.0	0.755
		3.4	14	0.00	1.04	0.28			42	0.00	1.34	0.21			27	0.11	0.89	0.17		
	c2	1.2	15	0.27	1.16	0.30	24.0	0.000	28	-0.36	1.52	0.29	385.0	0.012	14	-0.93	1.33	0.36	160.5	0.438
		3.4	14	-1.71	1.07	0.29			42	-1.29	1.27	0.20			27	-1.33	1.00	0.19		
	c3	1.2	15	1.27	1.22	0.32	47.0	0.010	28	1.79	1.50	0.28	433.5	0.057	14	1.29	1.14	0.30	141.5	0.194
		3.4	14	-0.36	1.60	0.43			42	1.17	1.50	0.23			27	0.70	1.33	0.26		
e1	1.2	15	0.93	1.22	0.32	63.0	0.070	28	0.54	1.00	0.19	475.0	0.158	14	0.79	0.98	0.26	185.5	0.924	
	3.4	14	0.00	1.30	0.35			42	0.21	1.09	0.17			27	0.81	0.79	0.15			
e2	1.2	15	0.40	0.83	0.21	71.0	0.146	28	0.29	1.08	0.21	564.5	0.770	14	0.00	0.96	0.26	179.0	0.796	
	3.4	14	-0.14	0.86	0.23			42	0.17	1.06	0.16			27	0.15	0.82	0.16			
e3	1.2	15	1.27	1.10	0.28	55.0	0.029	28	1.86	1.24	0.23	321.5	0.001	14	1.21	1.25	0.33	187.5	0.968	
	3.4	14	0.29	0.99	0.27			42	0.88	1.25	0.19			27	1.15	1.38	0.27			
A	1.2	15	1.87	2.10	0.54	41.0	0.004	28	2.75	2.98	0.56	246.0	0.000	14	1.57	2.31	0.62	157.5	0.391	
	3.4	14	-0.64	2.17	0.58			42	-0.50	2.48	0.38			27	2.19	2.24	0.43			
C	1.2	15	2.33	2.41	0.62	23.0	0.000	28	1.96	3.25	0.61	342.5	0.003	14	0.43	2.10	0.56	155.5	0.362	
	3.4	14	-2.07	2.50	0.67			42	-0.12	2.81	0.43			27	-0.52	2.47	0.48			
E	1.2	15	2.60	2.41	0.62	46.5	0.009	28	2.68	2.42	0.46	394.0	0.019	14	2.14	2.32	0.62	184.5	0.903	
	3.4	14	0.14	2.14	0.57			42	1.31	2.51	0.39			27	2.11	1.83	0.35			

legend: N = count; AM = average mean; SD = standard deviation; SEM = standard error of mean; U = value of Mann-Whitney test; p = significance; abbreviations of the learning motivation components are defined in chapter 3

1. emotional warmth: need for safety,
2. responsibility: need for self-integrity,
3. consciousness: need for self-esteem,
4. independence: need for following own way,
5. affiliation: need for fellowship,
6. competence: need for gaining knowledge,
7. order: need for following the values,
8. interest: need for responsibility to new,
9. pressure: need for unattainable aims without understanding,
10. identification: need for acceptance by teachers.

Despite the change in the author's conception of learning motivation, we will come from the original model.

We hypothesize that there exist differences in the learning motivation among the age groups of the pupils in the relation with their school effectiveness.

4. Results

To test our hypothesis we used Statistical Program for Social Science 16.0. We used Mann-Whitney test to test differences among research groups. As a critical statistical value which indicates the statistical significance, we appointed the standard value of $p \leq 0.05$.

The results are presented in Table 2. All significant differences are emphasized by Bold.

We found out that for children with lower school effectiveness (represented by marks from Mathematics) represents the emotional relationship to parents (a1), need for knowledge (c2) a moral values (e3) a zero or negative motive. This result is valid for age groups of 10-11 year and 12-13 year old children.

In the age group of 12-13 year old children has joined these motives also the relationship to authority (a2), relationship to classmates (a3) and trust in own powers (k1).

In the age group of 10-11 year old children is a specific difference in the motive defined as interest (c3).

In the age groups of 10-11 year olds and 12-13 year olds we discovered significant differences between children who are school effective and less effective in all three motivation dimensions – affective, cognitive and effect. At the same time, affective and cognitive dimension has shown in the group of less school effective children in the age of 10-13 years as demotivating (based on achieved averages), by relatively stable value of standard deviation and average error. This finding is valid for all sub-dimensions as well. Less school effective children always score lower and in many cases, especially in age group 10-11, their score is negative.

In the age group of 14-15 year old children we haven't discovered any statistically significant differences in learning motivation in relation to school effectiveness. We believe that this result is caused by the specifics of this age, meaning the child is already able to evaluate own performance in relation to own abilities and effort and is able to perceive the relationship between the chosen learning strategy and education result. The teacher's evaluation is in this case only confirmation of correct or incorrect selected strategy.

Despite the specificity of discovered findings in the age group of 14-15 year old children we can support the defined hypothesis.

4. Discussion

The discovered findings support the fact that the relationship between learning motivation and school effectiveness is clearly identifiable at younger children. The success, in our research represented by a mark, is a variable which influences the learning motivation. Success always leads to motivation of future behaviour or

higher aspirations and failure always leads to demotivation or lower aspirations. This phenomenon is also related to developing ability of children to realistically evaluate own abilities in relation to own performance and performance of peers, in relation to comparisons and creation of more or less precise idea about own strengths and weaknesses. This presumption reflects in self-concept of school effectiveness, in global self-concept, self-evaluation and has a direct relationship to individual preference frames, profiling of education activities and their quality, selection of professional activity and biodrome in general.

The performance therefore represents an interpretation frame which serves to regulate further behaviour or expectations in relation to future success or failure (see e.g. Čerešník, 2012b). It is an inherent part of beliefs in own sources, strategies and own role, in this case specifically, in education environment. We therefore speak about regulation beliefs which directly regulate behaviour in school in relation to cognitive, affective or psychomotor contents of education and their adoption and indirectly regulate the life attitude fed by various variables, e.g. in the form of tendency to look for new, perceiving meaningfulness of an activity or engagement into public affairs.

Motivation dimension of pupil's evaluation in relation to their ability and at the same time in relation to education standards and also relation of personal competences and curriculum is therefore indispensable from the point of research results. It opens questions "how to evaluate?", "in relation to what?", "how and if to define expectations related to education results?" and "how to draft feedback so that it is developing and activating?".

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The reproduction of social risks and social exclusion within the education system of the Czech Republic

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Abstract

The text deals with the reproduction of social risks and social exclusion within the education system of the Czech Republic. In recent years there has been a marked social differentiation. Areas with a high degree of concentration of risks for children (identified in our analysis) display mechanisms of exclusion of children from the educational mainstream. These are explored in the context of pedagogy of the oppressed, limits of human capital, and the role of schools in preserving status quo (Freire, Illich, Bourdieu). The resulting poverty traps are reproduced in the form of limited permeability of the education system from kindergarten to high school (non-participation in nurseries, segregated practical schools, etc.).

Keywords: critical theory, education system, poverty, reproduction of risk, social exclusion

1. INTRODUCTION

The text deals with the reproduction of social risks and social exclusion within the education system of the Czech Republic. This reproduction is related to the total, fundamental transformation of Czech society, which has undergone a marked social differentiation in recent years. The beginning of significant change dates back to 1989, when an extensive socio-economic transformation began, as a result of the end of socialism and the advent of capitalism. The changes contributed to social inequalities and the stratification of society, and also affected the way inequalities are perceived. A society that officially denied and hid its inequalities suddenly displayed them in the process of transformation; moreover, social actors started to perceive success and failure very intensely. Rapid growth of social and economic inequalities and growing social differentiation affected the entire social space, forms of coexistence, as well as perception of the legitimacy of social inequalities. In recent years we have been able to observe processes that Galbraith (1967) called regional poverty, i.e. people become “victims” of the environment in which they live. Transformation processes have been gradually reflected in the new patterns of spatial organization of the population, resulting in spatial and social polarization, deprivation, social exclusion, and segregation. The resulting social and territorial inequalities also negatively affect the quality of life of the population, putting people at a disadvantage in some places, and reducing their life chances. Reproduction of social exclusion and the poverty which can be seen in these places acquires an intergenerational character. The education system becomes part of the marginalization process, affecting both children and youth. Areas with a high degree of concentration of risks for families and children that we have identified in a nationwide analysis display mechanisms of exclusion of children from mainstream education. On a theoretical level, we focus on the pedagogy of the oppressed, limits of human capital, and the role of schools. The resulting poverty traps are reproduced in the form of limited permeability of the education system, from kindergarten to high school. Manifestations of marginalization include non-participation of

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children in pre-school education, existence of ethnically-segregated practical schools, and selective admissions system.

2. CRITICAL THEORIES OF EDUCATION

The theoretical framework of this study is based on critical theories dealing with school functions – they include the approaches of P. Bourdieu, P. Freire, I. Illich, B. Bernstein, etc. These theories view school as part of the selection system, supporting inequality in society and maintaining the status quo in power distribution. School fails to perform the function of selecting individuals according to their abilities to master the subject matter, but according to their social origins, becoming – if we use a metaphor presented by Bourdieu (1998: 28) – a demon that divides students based on the level of their inherited cultural capital, thereby allowing the growth of social divisions between different groups and constituting one of the causes of social inequalities.

Bourdieu, mentioned above, presents in his text a representation of the education system as a mechanism that is able to separate individuals with low and high inherited cultural capital. Individuals with high cultural capital then find it easier to reach a certain degree than individuals whose capital is low. This creates a new aristocracy that has transformed its titles into school degrees. School thus acts as a tool for growing differences, not as a tool for their reduction, as its function is often defined externally (Bourdieu 1998: 30). This part makes the theory very similar to the theory of language codes, developed by Bernstein (2003: 76). He distinguishes between restricted and elaborated linguistic codes. The restricted code is used mainly by the lower social strata of society, and the elaborated code by middle and upper strata. Based on the use of individual codes that are acquired within socialization (which brings us back to the inherited cultural capital of individuals), school divides students into those who speak the elaborated linguistic code and those who have not acquired this code.

Another group of theories – interpreting the latent function of school – includes critical theories developed by Freire and Illich. The banking model of education presented by Paulo Freire resembles narration – there is a narrator on one side and a listener on the other. The educator feels that he/she stores valuable knowledge in the learner, i.e. knowledge which is useful. Education is thus akin to unilateral presentation of information that the listener receives. However, since the narration is often not relevant for the listener's world, it becomes a transfer of (often for the listener) useless knowledge. Education becomes the process of storing information in students (Freire, 1996: 52). This method of educating supports the reproduction of information acquired in this way – it does not lead to discovering the laws of the world, and it thus serves to fulfill the wishes of the narrator, who transfers his/her world to the listener. Moreover, without critical reflection, it involves the transfer of the structures of power hidden in the language that can be applied by the ruling group to the oppressed (this is also reflected in the name of P. Freire's theory – pedagogy of the oppressed). This view of knowledge is criticized by Lyotard, in his description of the operation of postmodern knowledge, which “is not simply a tool of the authorities; it refines our sensitivity to differences and reinforces our ability to tolerate the incommensurable. Its principle is not the expert's homology, but the inventor's paralogy.” (Lyotard 1984: 25). However, these differences are suppressed in the transfer of a great narrative – Freire assumes that listeners are passive recipients of the deposit, not its active co-creators.

A very similar opinion about school is presented by Illich: “School is the advertising agency which makes you believe that you need the society as it is.” (Illich 2000: 113). Teaching thus involves the transfer of a “hidden curriculum”, which is directed at students during the transfer of the formal curriculum (e.g. transfer of knowledge). This hidden content is a positive evaluation aspect related to the current structure of society. Students are trained by schools to take their position (e.g. in the education system, social stratification, etc.) for granted.

All these theories point to the selective function of school, which is often hidden behind its official purpose. School thus hides its effect in increasing differences (which in the end leads to differences in the social structure of society) behind the formal goal of increasing education of members of society – in some national documents (see, for example, the Strategy of Lifelong Learning 2007: 54), there are also efforts to promote equality. However, according to the authors given above, it is a question whether the objective is actually being implemented and

whether it is not a mere pretext for the exercise of power and an instrument of social differentiation. It is clear that school, as an institution, plays an important role in the distribution of life chances, and that local educational markets are exposed to social exclusion mechanisms.

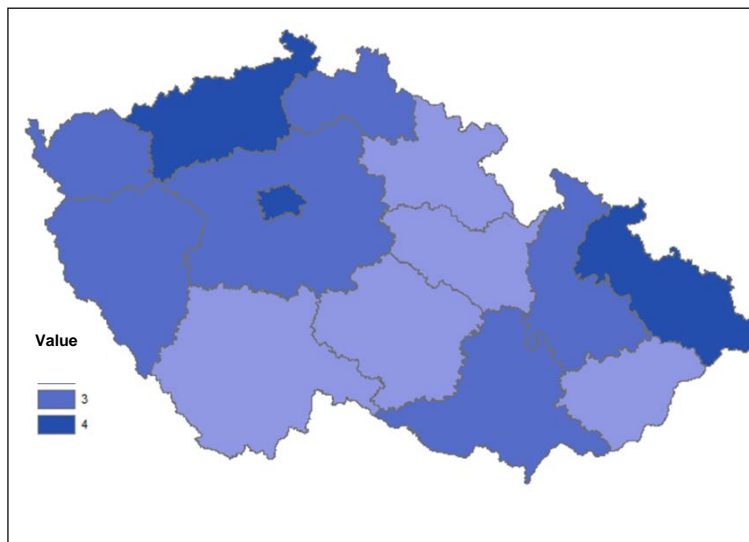
3. SPATIAL DISTRIBUTION OF SOCIAL RISKS

As we already mentioned in the introduction, Czech society has displayed a marked social differentiation in recent years. The changes affected both the economy and lifestyles, and they also deepened the gap between prosperous and stagnant areas. Stagnant areas exhibit a decrease in the quality of life, limited facilities and infrastructure, unemployment, and a general reduction of social activities. Marginalized localities are viewed as having essential ethnicized attributes, and these attributes are associated with impurity (Vacková et al., 2011). The physical map contains places in which significant social risks endangering the “second” generation, i.e. where children and youth are concentrated, and in which reproduction mechanisms of these risks have also been formed.

Areas with a high degree of concentration of risks for families and children, which we identified in a nationwide analysis, display mechanisms of exclusion of children from mainstream education. We have compiled a map of the concentration of these risks. First, we mapped the risk phenomena endangering children and families. Subsequently, we identified the problematic phenomena affecting children, youth and families, and verified the validity of the reported data for individual years. The phenomena associated with risks to children, youth and family were divided into three main categories of risk: demographic and social environment, economic activity, and incompleteness and failure of the family. In total, we collected data for 48 indicators from the above-mentioned three dimensions. Originally, we defined 80 risk phenomena in the operationalization, but due to the lack of data or incomplete data, we had to exclude data particularly in education, housing services, health services, and data capturing some risk phenomena that are generally difficult to quantify (e.g. consumption of addictive substances). The first area of interest includes an overview of general indicators relating to the lives of children and families in the social environment with respect to the selected socio-demographic data. The second area includes the indicators of economic activity, unemployment, and receipt of different types of benefits. The third area focuses on data relating to incompleteness, vulnerability, and failure of the family – this is a list of the consequences of loosening family life.

The data was processed as follows. We divided the data into 5 equally sized intervals and marked them just like in school. The assessment was assigned for each indicator based on the division of data into 5 equal intervals between the maximum and minimum values (measure of variation), with regard to the direction of the indicator. 1 means that the indicator is the most favorable for the administrative unit, while 5 represents the highest load. In conclusion, we prepared a synthetic indicator of threat for all areas. Three zones in which the situation, with respect to the comparison of the indicators, is bad, average, and good can be derived from the synthetic indicator for the entire Czech Republic. From the perspective of children, youth and families, the situation is bad in three regions: the Moravian-Silesian Region, the Ústí nad Labem Region, and the Capital of Prague. An average situation can be found in the following seven regions: the South Moravian Region, the Olomouc Region, the Karlovy Vary Region, the Central Bohemian Region, the Liberec Region, the Pilsen Region, and the Zlín Region. In comparison with the other regions, the situation is the best in the following regions: the South Bohemian Region, the Hradec Králové Region, the Pardubice Region, and the Vysočina Region.

Map 1 – Summarized indicators by region



It is evident that the concentration of risk is unevenly distributed. It is much higher in the border regions, where it makes sense to analyze radical social, economic, and demographic changes during the 20th century (post-war expulsion of Germans and the subsequent settlement of the border regions by ethnic Czechs, industry restructuring, agricultural changes, etc.). It is these regions that show a very strong correlation between the uneven distribution of endangered children/families and poverty or social exclusion. But even regions with lower risk include places with a higher degree of risk, as shown by the results at a much finer level of districts or municipalities with extended powers. In this context, we must mention an example of significant internal difference in the South Moravian Region, which exhibits a significant difference between rural peripheries and the metropolitan area.

4. REPRODUCTION OF SOCIAL EXCLUSION IN THE EDUCATION SYSTEM

Inequalities that are reflected in the social and physical space are manifested in different dimensions of life. We can talk about inequalities in living conditions and in the labor market and the related income inequality, which in turn leads to inequality in consumption and lifestyle. Marginalized areas also display the reproduction of inequalities in education and access to it. Education can be viewed from two perspectives. On the one hand, it offers life chances and it is an instrument of removing inequalities and barriers in society. However, there is also a skeptical perspective, i.e. the education system is seen as a tool for maintaining social inequality (Mareš, 1999: 36). In this section, we focus on the mechanism of the reproduction of social exclusion in the education system.

In the Czech context, educational reproduction has been studied by Tomáš Katrňák (2004). Using the theory of Pierre Bourdieu, Katrňák views cultural capital as the cause of the reproduction of social structures, because always being connected with a certain position in the social structure (social space), it tends to reproduce. This approach is fitting, because educational inequalities in Czech society have “traditionally” been transferred by cultural capital within the family. In the socialist era, inequalities in the education system were reduced and reproduction took place on the level of the parent who achieved a higher educational status. The situation after 1989 is illustrated by research

carried out by Katrňák (2004). According to Katrňák, children from a higher stratum usually have better language skills and are thus able to understand the world in terms of the dominant culture, which operates the education system. While some can use and define concepts and work with abstract meanings, others may not even understand their teachers. This confirms what has previously been expressed by Bourdieu, i.e. that school does not balance inequalities between different levels of cultural capital, but exacerbates them.

Although, in the course of the 20th century, education systems went through the process of democratization, promising to remove traditional inequalities (Keller & Tvrdý, 2010), the reality is quite different. Input differences in cultural capital are exacerbated in the process of education (Simonová & Soukup, 2010). We also present an example that illustrates the “failed” democratization of education. In Czech elementary education, it is the unintended consequences of the system democratization in the form of removal of the “catchment area” rule in districts, incorporating market elements in the educational environment. Parents are free to choose the school they want to send their children to. For this reason, and also because of unfavorable socio-demographic situation in society, schools compete for students, which leads to the improvement of services offered, including specialization. This causes marketization of education, resulting in school hierarchization. This hierarchization is particularly visible in areas with high levels of social exclusion and risk concentration. Less successful children, or more precisely children of less successful parents, are concentrated in schools that are labeled as “bad”. The lack of cultural capital is also evident in marginalized children that do not attend pre-school facilities and do not have such capital which their peers gained. As a result, they are disadvantaged at the very beginning of their education.

An example of exclusion of children from the education system is the “special school”. The change in the status of these schools into “practical schools” failed to remove common practice to concentrate in them socially disadvantaged children together with physically handicapped children. Social disadvantage has often been identified as a mild mental disability, and the inclusion in a practical school *de facto* meant the end of education.

One of the criteria to facilitate the identification of failure is ethnicity. According to estimates, as well as sociological research, about one third of students attending practical schools are Roma children (GAC, 2009). Roma children fail in standard education. According to the “Analysis of Attitudes and Educational Needs of Roma Children and Youth” (GAC, 2007), they are significantly less successful, more often repeat a year or are moved to special classes or schools, and are not ready to start their education.

Ethnicity causing disadvantage is the most evident in relation to “being Roma”, which is a label for school failure. Research into the reproduction of social-spatial inequalities through education in Roma localities has been carried out by Nekorjak et al. (2011). Segregation of the Roma began in the communist regime, but after 1989 the situation of the Roma in the Czech Republic deteriorated. During the ongoing socio-economic transformation, the Roma became a symbol of failure. In a number of what is called socially excluded localities, segregated schools were established – these are ethnic “monoliths”, in which the ethnically labeled children are concentrated. While Roma parents still place their children in schools based on the catchment area principle, non-Roma parents use democratic advantages and send their children to other, more distant schools. Segregated schools were established in a short time, and the chances of their students to advance to high school or college/university are very small. At the same time, based on their own adjustment of the school educational curriculum, schools can meet the requirements of their customers/students, regardless of whether they are Roma or non-Roma schools. If non-Roma schools want to “discourage” Roma students, they emphasize their specialization, for example, in mathematics or languages, adding that the study requires higher financial cost due to higher charges for interest groups, etc. This creates a symbolic, but objective barrier (Nekorjak et al., 2011: 670).

On the other hand, educational institutions that have adopted the identity of “Roma” schools also develop activities and opportunities for their target group, but this activity is an expression of their adaptation to the situation and confirmation of the symbolic exclusion rather than equalization of opportunities (e.g. reduction of the teaching pace, introduction of the position of assistant teachers, joint programs with local non-profit organizations, “preparation” years). Another barrier is the orientation of parents to segregated schools, because they view their environment as safe: children do not have to face pitfalls of contact with children from mainstream society, and the

parents usually have personal experience with the schools. Less conspicuous mechanisms of exclusion stem from a lack of economic capital. The cost of commuting to distant schools or expensive school supplies affects the structure of parents' decision-making process.

Another aspect of the exclusivity of the education system is the accessibility of higher education. This is partly caused by the regulated system of student admissions and the success rate of general upper secondary school ("gymnasium") students, for whom higher education is more open, as opposed to other high school students (Konečný et al., 2010: 68). Admissions are undoubtedly influenced by the shared cultural knowledge of the "Czech" community that outsiders find more difficult to access.

5. CONCLUSION

Over more than the last two decades, we have witnessed a growing social differentiation within society. The changes affected, for example, social inequalities, which are also reproduced by the education system – until now this system has displayed a lower degree of inclusiveness, in comparison with other countries. The appropriate degree of openness of the education system can be discussed, but the discussion is more likely to be limited to the level of interconnection of academic discourse and practical politics. If we remain at the academic level, we describe different aspects of exclusiveness of the education system and show how it becomes part of the marginalization process, and how it affects living conditions and opportunities for children and becomes a tool of the reproduction of social exclusion. As we have shown, it is in places with a high degree of risk concentration and poverty that education is of a very exclusive character. The manifestations of marginalization include non-participation of children in pre-school education and their subsequent exclusion, the existence of ethnically segregated practical schools, and other selective systems (lack of economic capital, construction of the admission system). As it turns out, the primary role in the Czech education system is still played by the reproduction of cultural capital; seen from the perspective of the "failed", the marginalization process is reinforced by the banking model of unilateral transfer of information to passive audience and, within the segregated school system, also by pedagogy of the oppressed, which attempts to discipline and control the "uncontrollable".

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The role of the critical friend in leadership and school improvement

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Abstract

This research will investigate the role of the critical friend in supporting school leadership and school improvement. Critical friendship is a versatile form of external support for school colleagues engaged in leadership activities, and one that is subject to increasing professional and political interest (Swaffield, 2004).

The proposal is to explore the notion of the critical friend and investigate the role through a case study, questioning, what is the role and impact of the critical friend in supporting school improvement?

This is an emerging area of interest and support for schools. Critical friends are an under-researched, nonetheless it is an important phenomenon, which is significant because leadership is clearly linked to improving schools, and critical friends have been shown to support the work of school leaders. This research will provide evidence of the critical friendship role and will hopefully lead to further research.

Keywords: critical friend, educational leadership, school improvement

1. INTRODUCTION

This research project, which is being conducted by Dr David Gurr (supervisor) and Marcela Huerta (master student) from the Melbourne Graduate School of Education at The University of Melbourne, is part of a master's thesis.

This research investigates the role of the critical friend in supporting school leadership and school improvement. The use of critical friends is a versatile form of external support for school colleagues engaged in leadership activities, and one that is subject to increasing professional and political interest (e.g. Butler et al., 2011; Swaffield, 2004). Swaffield (2004) argues that the role of critical friend as a facilitator of change has become a significant component of a range of school improvement, health promotion and professional learning initiatives in school communities. The role of the critical friend is a dynamic one, requiring a high level of skill, flexibility, and professional judgment. Rather than following a checklist of scripted "technical assistance", it is about developing a repertoire of strategies and skills, and learning when and how to use them, taking account of the particular context (Butler et al., 2011). Effective critical friends draw on a repertoire of actions, depending on the context, participants and phase in the change process at any particular point in time. This is an emerging area

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of interest and support for schools and reflects interest in other areas of staff support such as mentoring and coaching.

The critical friend is very often working alone in the particular school or community. The nature of the work means that it is often invisible: nurturing relationships, building understanding and enhancing capacity is work that may not show immediate or tangible results (Hawe et al., 1998)

A critical friend has been described by Costa and Kallick (1993:50) as: “a trusted person who asks provocative questions, provides data to be examined through another lens, and offers critiques of a person’s work as a friend”. Doherty, Macbeath, Jardine, Smith and MaCcall (2001), extend this when they describe the critical friend as helping schools make sound decisions, challenging expectations, patiently playing a role that is interpretative and catalytic, helping shape outcomes but never determining them, alerting the school to issues often only half perceived, and being sympathetic to the school’s purpose.

Critical friends do not necessarily need to be experts in the specific area of work that is focus of the critical friendship. Indeed not being an expert enables the critical friend genuinely to ask the powerful questions. While critical friends are not necessarily required to have high levels of technical expertise, they do need to be familiar with the context. Moreover, some expertises are needs, in this sense. Block (1999) suggests that three sets of skills are needed by the critical friend: technical (expertise about the particular issue), consulting (process skills such as negotiating entry, agreeing the scope of the work and eventually disengagement) and interpersonal skills.

The first two could be considered as competences of the critical friend, and the third one is more about competencies or qualities of the individual (MacBeath and Myers, 1999). In addition, important skills are required for the critical friend such as: listening, observing, questioning, managing conflict and team building, along with qualities such as respect, empathy, genuineness, confidence, optimism, sensitivity, insight, thoughtfulness and commitment (Swaffield, 2002).

Critical friendship is a highly adaptable form of support for the leadership of school improvement. Despite the variety of contexts in which critical friends operate, there are common features to their work such as establishing and maintaining a relationship of trust with others, questioning, critiquing, and providing feedback.

Major Research Question

What is the role and impact of the critical friend in supporting school improvement?

The implementation of change initiatives in school communities has increasingly involved the use of staff whose role is specifically to support the change process. Such staff may be called project officers, trainers, technical assistants, facilitators or critical friends. They may be staff within the school community, but they are often members of a project team based on outside the school in a university, or within a government department or non-government organization or other professional body. The nature of their role depends a great deal on how the change process within the initiative is conceived (Butler, H., Krelle, A., Seal, I., Trafford, L., Drew, S., Hargreaves, J., Walter, R. & Bond, L. 2011).

The work of critical friends can be linked to leadership theories such as the transformational leadership view of Bass and Avolio (1996, p. 11). In this view, an educational leader would take actions to increase staff awareness of what is right and important, to increase the motivational maturity of staff, and to encourage staff to go beyond self-interest for the good of the school. These leaders provide staff with a sense of purpose that goes beyond a simple exchange of rewards for effort provided. These leaders attempt to optimise development, not just performance. Development encompasses the maturation of ability, motivation, attitudes and values. Such leaders help staff to strive to attain a higher level of potential as well as higher levels of moral and ethical standards. Through the development of staff, they optimise the development of the school as well. High performing staff builds high performing schools. Critical friends may have a direct role in supporting school leaders to develop staff, or in supporting the overall improvement of the school. There is a small and emerging literature on the role of critical friends and this study seeks to provide a rich single-site case study of how two

critical friends have worked in helping a secondary school in Melbourne embark on a long-term improvement journey. This study will provide evidence of the critical friendship role, which is important because leadership is evidently associated to improving schools, and critical friends have been shown to support the work of school leaders.

Methodology

Qualitative research is a situated activity that locates the observer in the world, involves an interpretative, naturalistic approach to the world. This means that qualitative researchers study things in their natural settings, attempting to make sense of, or interpret, phenomena in terms of the meaning people bring to them. Qualitative research refers the studied use and collection of a variety of empirical materials that describe routine and problematic moments in individual lives (Denzin & Lincoln, 2005 pp. 3-8).

According to our theoretical position, about how the nature of this phenomena being investigated and epistemologically concerned on our question of knowledge and how we come to possess it, we can affirm that in this research, the methodological paradigm is clearly from a constructivist understanding of the world; this means that the meaning of reality is likely to be constructed differently as a function of the position or perspective taken by a culture, a social formation, or an individual person. Knowledge and meaning are always partial and perspectival. Thus there are a variety of meanings that might be ascribed to any object or process, all of which may be both reasonable and functional given the perspective from which they are viewed or known (Kamberelis & Dimitriadis 2005).

The chosen methodology presuppose a certain view of knowledge and reality, which is mostly interpretivist , because this research will obtain findings in depth, interpretative, individual, idiographic and context dependent, developing a body of knowledge in the form of “working hypothesis” that describe the individual case. According to Kamberelis & Dimitriadis (2005), the term interpretivism refers to an assemblage of theoretical variants that guide approaches to qualitative research. Although each variant shares family resemblances with the others, each also embodies some unique methods and practices.

This research is based on a single case study using qualitative methods. The most important reason, for choosing this methodology is the possibility that we have to conduct an in-depth and detailed study. According to Mike Palmquist (2012), case study is well-known as a form of qualitative descriptive research that is used to look at individuals, a small group of participants, or a group as a whole. However, it is important that the participant pool remain relatively small. The participants can represent a diverse cross section of society, but this isn't necessary. Often, a brief "case history" is done on the participants of the study in order to provide researchers with a clearer understanding of their participants, as well as some insight as to how their own personal histories might affect the outcome of the study.

There are multiple definitions and understandings of the case study, according to Yin (1994) a case study is an empirical inquiry that investigates a contemporary phenomenon within its real life context, especially when the boundaries between phenomenon and context are not clearly evident. Guba and Lincoln (1981) describe case study “types”. These types are factual, interpretative and evaluative. Regarding to this, my researcher’s actions will include recording, constructing and presenting, and producing a chronicle, a profile or facts.

A case study is a specific instance that is frequently designed to illustrate a more general principle (Nisbet and Watt, 1984:72); it is the study of an instance in action. Case studies can make theoretical statements, but, like other forms of research and human sciences, these must be supported by the evidence presented (Cohen, Manion and Morrison, 2002:182). This evidence will be obtainable by the method used, which is the interview, and their respective findings. Additionally this research will be construing, synthesizing, clarifying, and producing meanings and understandings about my topic. In summary the purposes of this case study research will be descriptive and interpretive.

Method

Data will be collected using multi-perspective interviews with participants and school leaders within a school setting who have been involved with a critical friend.

The use of the interview in research marks a move away from seeing human subjects as simply manipulable and data as somehow external to individuals, and towards regarding knowledge as generated between human, often through conversations (Kvale, 1996:11).

This study will explore the role of critical friends in helping to improve a three-campus secondary school in a northern of Melbourne, Hume Central Secondary College. A multi-perspective single-site case study methodology will be used. The multiple perspectives come from asking the critical friends, principal class members and members of the leadership team to comment on the role of the critical friends in helping the school to improve. Single interviews will be held with the two critical friends, and the four principal class members. Group interviews involving 2 participants will be held with three groups from the school's leadership team, which comprises about 6 members. Each interview will last approximately one hour and will be recorded. Transcripts of individual interviews will be returned to participants for checking. For the group interviews this will not be possible as individual members will not be identified in the research. The interview questions are provided in the attached appendices. The study at the school will be conducted over a two-week period. Data will be coded and analysed using the thematic coding methodology espoused by Miles and Huberman (1984, 1994).

The conduct of the research will be monitored by the student researcher and the supervising researcher through on-site and email/phone conversations. All the research will be conducted in the one Victorian government school with the permission of the DEECD and the participants. It is relevant to be mentioned that the supervising researcher is an experienced academic with more than 100 publications, one ARC grant, supervision of more than 40 doctoral and masters research, qualifications as a teacher and psychologist, and 30 years' experience in education.

The use of multiple perspective interviews (critical friend, principal class, leadership team) will provide rich information within the case study school and within the scope of a Master of Education thesis. The range of interviews provides for an adequate range of multiple perspectives on the school related to the role of the critical friend, and the leadership of the Principal, and it will also provide the opportunity to compare and contrast perspectives of the participants from the three categories.

Sampling

The quality of a piece of research not only stands or falls by the appropriateness of methodology and instrumentation but also by the suitability of the sampling strategy that has been adopted (Morrison, 1993:112-17).

The participants will be selected through a purposeful sampling, based on their work at the case study school, and the site will be chosen, according to the main issue of our research that is, improving schools that have been at risk with the support of critical friends, to observe the role of the critical friend in leadership and school positive outcome.

The sampling will be composed by:

- 2 critical friends
- 1 Executive Principal
- 3 Campus Principals
- 3 groups of 2 members of the leadership team who have volunteered to be involved.

All of them are part of the staff of the site selected, which is Hume Central Secondary College.

One of the reasons we chose this type of sampling relates to the opportunity of the opportunity to selecting information-rich cases for study depth. As Margaret Preston (1875) mentioned, the information rich-cases are

those from which one can learn a great deal about issues of central importance to the purpose of the inquiry, thus the term “purposeful sampling”.

The most significant benefits for the research, through the purposeful sampling, will be to obtain an in depth understanding, focuses on selecting information –rich cases whose study will illuminate the questions under study.

Access to sites/ participants.

The student researcher will contact the principal of the school by mail and phone to seek permission to conduct the research. Recruitment of the critical friends, principal class members and members of the leadership team will be done through direct contact at the school.

Participation is, of course, voluntary. The principal is already aware of the research and is supportive as are the two critical friends. Hence we do not anticipate problems in gaining participants.

Once approval has been obtained from the DEECD, the student researcher will formally contact the principal of the school by mail and phone to seek permission to conduct the research. Recruitment of the critical friends, principal class members and members of the leadership team will be done through direct contact at the school.

Data analysis

Research strategies, technique or methods are specific practices and procedures that researchers deploy to collect and analyse data and to report their findings. This qualitative research involves a basic kind of data, which is the interview and the strategy for collecting and analysing this data engage a videotape interaction, with the participants. The type of analysis will be through a discourse analysis, which is used to discover and map recurrent macro patterns that characterize writing practices, contexts and politics. Discourse analysis is used to examine the micro patterns embodied in specific verbal-visual interactions (usually represented in transcripts) to understand both the forms and functions of these interactions and the ways in which they both index and sustain recurrent macro patterns. Thus, discourse analysis often yields powerful exemplars of the various macro patterns found in any study. A primary goal of discourse analysis is to show how specific verbal-visual actions and interactions both index and sustain general and durable patterns of action and interaction common to a given social formation (Kamberelis & Demetriadis, 2005).

Rigor and trustworthiness

Researchers need alternative models appropriate to qualitative designs that ensure rigor without sacrificing the relevance of the qualitative research. According to the Guba’s model (1981), we will be working under four aspects of trustworthiness that are relevant to qualitative studies: truth value, applicability, consistency, and neutrality. Guba's (1981) model identified these four criteria applicable to the assessment of research of any type. Guba argued that these criteria must be defined differently for qualitative and quantitative research based on the philosophical and conceptual divergence of the two approaches.

Ethics procedure

Ethical concerns encountered in educational research produce a dilemma between the demands placed on researchers as professional scientist in pursuit of truth, and their subjects’ right and values potentially threatened by the research. This is known as the cost/benefits ratio, the essence of which is outlined by Frankfort-Nachmias and Nachmias (1992).

Some important aspects to consider in the ethics procedure for educational research are, for example: the informed consent and the access and acceptance to sites by the participants of the research. Firstly, the informed consent plays an important role from the subject’s right to freedom and self-determination. This protects and

respects the right of participant and places some of the responsibility on them, because the subject has the right to refuse to take part as well. According to this principle, we have prepared a specific consent form to the participant from THEMIS, which is the integrated administration system that supports the documentation and management of Finance, Human Resources, Research and Environment, Health and Safety processes at the University of Melbourne. Under the same system is based our request to gain access to the site/participants. In general, Ethical aspects will be well respected, because considered an ethic of respect for the person, knowledge, democratic values, the quality of educational research educational research and academic freedom (BERA, 2004, p.5).

Finally, to protect the confidentiality of the participant in the research, data and records of this research will be securely stored by the University Of Melbourne Graduate School Of Education and destroyed after 5 years.

Conclusion

Critical friendship is a flexible and potentially powerful approach to supporting leadership and school improvement, as the range of contexts drawn upon in this article demonstrates. While the role and functioning of critical friends remain under researched, various studies over the last 20 years provide a considerable source of knowledge. Supported by government policy the critical friend is set to become an integral part of school improvement practice in England. As this happen there is a need both to draw upon what is already known about critical friendship, and to extend our understanding (Swaffield, 2004).

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4th International Conference on New Horizons in Education

The role of veterinary education In fostering aquaculture development

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Abstract

Aquaculture is one of the most promising food producing industries, from both socio-economic and food security perspectives. It is developing fast and, unless there is a well thought-out strategy aimed at supporting this trend, errors can be made when dealing with aquatic animal disease outbreaks. Apart from establishing legislation and policies to assist countries/regions in implementing biosecurity measures, the strategy should focus also upon fostering adequate veterinary education, so that the “day-one” graduate to have a reliable level of understanding *of* / performance *in* the aquaculture sector.

Veterinary schools, particularly those within countries which rely upon aquaculture as one of the national food producing industries, should be encouraged to include aquatic veterinary disciplines within their curriculum. Through special designed veterinary curriculums, there would be available more veterinarians specialised on aquaculture to serve the needs of stakeholders and to help ensuring regional food security.

Keywords: aquaculture; aquatic veterinary education

1. SEAFOOD, A WORLDWIDE FOOD COMMODITY

Farmed fisheries are considered currently one of the fastest growing food producing sectors of agriculture globally. With an average growth rate of 8.8 per cent per year, [Arthur, J. R., Bondad-Reantaso, M. G., Campbell, M. L., Hewitt, C. L., Philips, M. J., Subasinghe, R. S. (2009)], it accounts for around 50 per cent of the global fish food consumption, which is sourced actually by farmed and capture fisheries, [R.P. Subasinghe, J.R. Arthur, D.M. Bartley, S.S. De Silva, M. Halwart, N. Hishamunda *et al.* (Eds.) (2012)].

This indicates that the aquaculture sector is overtaking exploitations of capture fisheries, thus, it gradually reducing our dependence on natural aquatic resources. In relation to global animal protein production, animal seafood has come to dominate most livestock and poultry industries, [W.R. DeHaven, A.D. Scarfe (2011)], and this is a trend expected to maintain by 2030, particularly within developing countries [Arthur, J. R., Bondad-Reantaso, M. G., Campbell, M. L., Hewitt, C. L., Philips, M. J., Subasinghe, R. S. (2009)].

There are various factors supporting the growing trend of farmed fisheries all over the world. There is a constant increase of the world population, who is currently estimated at 7 billion people, and is growing at a rate of 1.3 per cent per year, it being expected to reach 8.9 billion by 2050 (U.N., 2013). In relation to these estimations and to

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other factors, it is predicted that, by 2025, around 75 per cent of the human population will live within 150 km of a coastline ¹, thus a significant pressure following to be placed on the natural aquatic resources, unless well thought-out strategies aimed at sustaining the development of the aquaculture sector are *a priori* taken.

Today, it is strongly believed that aquaculture represents a solution to many of the food security problems, while also offering to potentially alleviate poverty through employment and country/regional development opportunities. It is also a better alternative to exploitation of natural aquatic resources, i.e. capture fisheries and, as it has recently been shown [R.P. Subasinghe, J.R. Arthur, D.M. Bartley, S.S. De Silva, M. Halwart, N. Hishamunda *et al.* (Eds.) (2012)], aquaculture may contribute to mitigating climate change impacts through production of food types and commodities which are minimally greenhouse gas emitting and carbon sequestering.

Fish food, whether captured or cultured, plays an important role in human nutrition and the global food supply. Fish are valuable through their various and high quality nutrient components, such as protein, retinol, vitamins D and E, iodine and selenium. The fats and fatty acids in fish, particularly PUFAs (n-3 polyunsaturated fatty acids), are highly beneficial and difficult to obtain from other food sources. Hence, it is not surprising that aquaculture has currently become an important production sector, which can contribute significantly to improving the well being of humans, while reducing overexploitation of natural aquatic resources.

2. INCENTIVES FOR CHANGES IN CURRENT VETERINARY EDUCATION

Due to its fast development, new animal diseases and pathogens are emerging in aquaculture [(Subasinghe *et al.*, 2000; Scarfe, 2003; OIE, 2012; Hine *et al.*, 2012)], this leading up to significant economic losses, with seafood safety and public health consequences, which all hinder in the sector development. Therefore, aquaculture seems to be facing now two major challenges: awareness of the public on the importance of this production sector, and an adequate number of knowledgeable and well trained workforce, especially veterinary workforce, prepared to adequately respond to public and aquatic animal health issues. While other professionals than veterinary communities may wish to take the lead in rising awareness on the importance of the sector over the future perspectives of food security within a growing population (e.g. food technologists, animal husbandry professionals, etc.), the veterinary school is expected to provide a necessary number of specialised workforce, prepared to handle the public health and food safety related issues, as well as to monitor and survey on diseases of aquatic animal populations.

The most significant lack in this respect apparently lies in current veterinary educational programmes, which are generally deficient in providing disciplines with relevance to aquatic veterinary medicine. Where such courses are provided by veterinary schools, they are either elective courses, usually identified as “exotic” or “wild” veterinary medicine, or they are available only as extracurricular continuing education and professional development programmes [W.R. DeHaven, A.D. Scarfe (2011)]. In Romania, veterinary schools are not providing basic courses on aquatic veterinary medicine, although aquaculture is acknowledged as being among the important animal food producing sectors of the national agriculture, EATiP, 2012. On the continent, other countries seem to follow the same curriculum template. Therefore, due to the actual importance of aquaculture, and because of the need for adequate aquatic veterinary workforce necessary to support this sector, aspect which has been stressed by the World Organisation for Animal Health (OIE, 2004), the Food and Agriculture Organisation (FAO, 2005) and has been addressed within the directive 88/2006 of the European Commission, an investment is required in aquatic veterinary education, at both basic and specialised levels, within veterinary curricula and through continuing education and professional development programmes of the veterinary practitioners [Laura Daniela Urdes, A. D. Scarfe, Cristiana Diaconescu, St. Diaconescu (2012)], along with rising

public awareness on the importance of aquaculture and its global positive trend, which should target also the academic management staff of veterinary and animal science schools.

3. GLOBAL EFFORTS IN FOSTERING AQUACULTURE DEVELOPMENT

In an effort to provide the aquaculture sector with specialised assistance and guidance on seafood safety and public and aquatic animal health, a number of international codes, guidelines and specific legislation have been issued (FAO - Code of Conduct for Responsible Fisheries, 1995; Directive 88 of the EC, 2006; OIE, 2004).

While it is claimed that the current governing standards and regulations are not perfect, this being a potential reason for aquaculture slow development within some countries/regions (i.e. they seem to be focusing on “listed” diseases, addressing commonly traded species only, not taking into consideration newly cultured aquatic species and their disease associated risks, nor all possible means of pathogens transmission), it is clear that certain national programmes are successfully being implemented in many countries, particularly within developed states such as Australia, Canada and Norway. It is obvious that, along with legislation, there needs to be in place also an adequate infrastructure, a good planning, and sufficient skilled personnel, that all require time and, perhaps more importantly, sufficient funds for the resources to be built therein. Unsurprisingly then, particularly in developing countries, which do not have available the necessary funds to develop their resources for early detection and effective response to diseases, the reaction to disease outbreaks in aquaculture is rightly characterised as “inadequate” (FAO, 2005). Insufficient human resources and a limited understanding of the gravity of a disease outbreak, required for early detection of pathogens, are alleged to be among the causes of failure to respond to aquatic animal diseases timely and adequately. In such countries, this situation persists despite specific rules and recommendations which emphasize that all states “...*must establish necessary legal provisions that are needed for the implementation of contingency plan(s)*” (OIE, 2004). With respect to this aspect, apart from the scarcity of financial resources necessary to build up the necessary infrastructure and human resources previously mentioned, these countries often lack sufficient expertise to assess their own legislative needs. Such countries should be able to ask for assistance on legislative matters from international agencies, such as Food and Agriculture Organisation of the United Nations (FAO), in order for them to be helped to revise or prepare new legislation, suited to the current national/regional expectations and requirements.

4. CONCLUSIONS

While, for many countries, an adequate infrastructure may take long time to achieve, strong foundations can still be established using the readily available resources. Vocational-level courses and workshops which provide hands-on practice to graduates, programmes of credentialing and certifying knowledge, skills and education for aquatic veterinary practitioners, national / international research programmes, technical cooperation programmes, as well as guidance documents and recommendation manuals, are all valuable resources able to assist developing countries/regions in improving or building up technical capacities. However, all these alternative means of achieving expertise useful in assisting aquaculture development are not sufficient, nor have they been proven to be sustainable on long term. At the same time, despite joint efforts, the number of specialists is still insufficient today, it not matching the rapidly developing industry, especially within the developing regions, where most aquaculture activity seems to be taking place. Definitely, there is a need for an increased emphasis to be placed on aquatic veterinary medicine disciplines within traditional veterinary courses, at the undergraduate and postgraduate levels, as clinical science along with a basic understanding of some key disciplines like biology, physiology and patho-physiology of aquatic animal species are of paramount importance in assisting the industry

in its rapid developing trend, which should provide in turn socio-economical development of the country and competitiveness on the trade markets.

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4th International Conference on New Horizons in Education

The role of dancing in the educational process

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Abstract

The aim of this work is to show how dancing, as well as other disciplines, may help to fully shape a person by acting at a physical, psychic and intellectual level simultaneously. We talk about educational dance, which looks at the person rather than at the dancer training and refers to a specific environment, the school context.

The reviewed reference literature analyses the so called Free Dance or Modern Dance, a revolutionary movement consolidated in the artistic field at the beginning of the 20th century. It questions the dichotomy mind-body and support a corporeality free from conditioning. Thanks to its pioneers we witness the gradual access of dancing into physical education programs.

Therefore, our inquiry on the relation Dance-School in Italy starts, taking in consideration the earliest normative references: the National Programs 2012.

The carried analysis fosters us to review the methodological approach commonly adopted in the school context, for it is still too fossilized on the cognitive aspect and poor of bodily-playful-creative doing. As a result, we believe the teaching workshop is the best solution to prompt the practice of dancing in the school.

Because it contemplates either the bodily and psychic aspect or the emotional and cognitive one, more than any other expressive languages, dancing can teach children to “dwell” their own body and find out the untapped potential, heightening the self awareness. Furthermore, the flexibility of dancing allows to link it primarily with music but with other disciplines as well, therefore facilitating their bond and contributing to the achievement of a global vision of knowledge.

Keywords: eucation; modern dance; body; movement; workshop;

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1. Introduction

Let us imagine some children engaged in listening their own body and finding out its pace, its expressive skills.

Let us imagine some children with bare feet, free to allow feelings to pass across their body and express themselves through the movement while a music is driving them. Let us imagine some children that finally devote their time to the discovery of those aspects belonging to the self, which are often neglected.

Now, just try to recall your school experience: when and how many times did you experience those feelings at school? Probably, we can count them on the fingers of the hand. Perhaps, the words stuck in your mind are: “be quiet, stand still, keep attention”.

Well, if you try to ask the same question to today’s children you will notice that the answers are almost similar. Although the value of the body has been recognized since a long time and the dichotomy mind-body seems already overcome, the reality shows something different. Though many studies confirm the holistic unity of the individual who learns, the school reveals a scenario rather contradictory. Nowadays, it is being given more importance to the cognitive and logical-mathematical intelligence than at the creative, ludic and bodily doing, which is rarely found in a school context and it often lacks a careful planning.

Children, more than adults, because of their feeble control of the verbal language, talk through the body and interact by gestures, they listen with the eyes. Then, why is the school so deaf in dealing with all this? Why does it tend to restrain the children’s free and playful movement?

2. Objective

On this track, the present work is aimed to lead the reader toward a reflection focused on one of those aspects quite often underestimated in the school context and considered a mere recreational activity, we talk about dance. My experience in this sector led me more than once to think about the actual educational values of dancing. This is the reason why I mean to illustrate the purposes, goals and benefits that dancing carries out and its contribution to the integral formation of a person as it acts at a physical and psychic level simultaneously.

3. Method

To achieve all these goals in the school context it is required a specific teaching method that according to us can be represented by the art model by Jacqueline Smith Autard. Born in the eighties, it is a method based on the threefold matrix Creating-Performing-Appreciating. The child, beyond the experience of “doing” dancing, is being driven to “compose” and “view” his own dancing, therefore stimulating executive, creative and analytical skills at the same time. Essentially, the model takes in consideration three aspects: the ability of doing (deepening the experience of movement and dance), the ability of creating (developing skills of exploration and invention of movements by assembling different elements together), the ability of observing (through the vision and comparison of different types of dance, children acquire the skill to develop a constructive criticism free from judgment and competition).

Another valid support to implement good teaching methods in the school is represented by the Pioneers’ theories of the Modern Dance, a revolutionary movement consolidated in the artistic field at the beginning of the 20th century. It questions the dichotomy mind-body and supports a corporeality free from conditioning. It discloses the movement as the raw material of the expression and the necessary tool to express the human’s interior dimension because the movement stems from intellectual and affective experiences.

In opposition to the ballet, this type of dance let the body move freely and allows the student to dance with bare feet or lying down on the floor. Therefore, it rediscovers an authentic movement as a soul’s mirror. (John Martin, 1991)

Finally, the schooling of Modern dance is not focused on the imitation of teacher's movements, but it is based on the improvement of the natural movements for children. It helps children to create their own movements and it does not impose rigorous and stereotyped movements.

Fig. 1 – The Art Model



4. Results

According to our studies, which refer to the Autard method, a dancing lesson in the school context may be built on the basis of a diagram that consists of five stages (Franca Zagatti, 2009):

1. *Welcome*. It is the first explorative contact with the environment in which the activity is going to take place. It is important to create a serene listening atmosphere in order to urge the familiarisation and direct children's attention to the activity that is going to start.

We can employ a greeting ritual based on contact gestures to improve the relation or the meeting between participants. Its length is around 15 minutes.

2. *General activation*. It is based on the preparation of the body at the physical activity. The preparation can be performed by following the movements suggested by the teacher.

3. *Exploration*. It is the central stage in which a path of experimentation and research around a dancing element takes place (the space, the strength, the rhythm etc). Therefore, it is the stage where the topic is being presented.

To arouse the attention and interest on the topic it is important to use some motivations: books, images, objects, fantasies, facts. It lasts around 15 minutes.

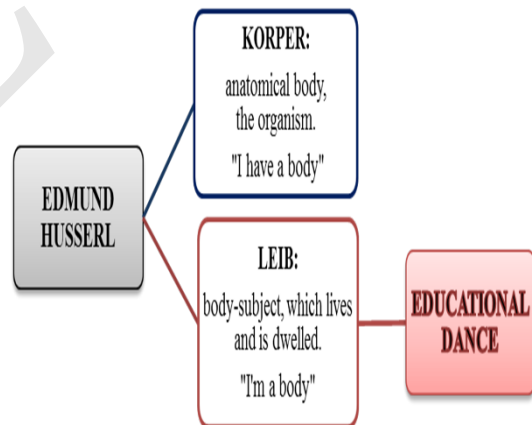
4. *Composition.* In this stage the children's creative ability finds space. They are engaged in composing individual and collective sequences, coordinating the different movements. It is important to make children understand the concept of a phrase or sequence: dancing has to be created starting from a beginning that, through a recognizable development, arrives at the end. On this regard we can assign to children a structure that they can follow, for example an ABA and so dancing will start and end at the same way while the students will fill the central part; or an AB and offer the possibility to work on the dynamic or spatial contrast (light- heavy; little- big).

5. *Conclusion.* It is a dismissal stage and it is important either for the teacher or the student to end the meeting in a satisfying way. A verbal comparison can be proposed whose purpose is to discuss the experience just lived and understand what it is done e how it is done. Otherwise, a greeting ritual or a collective dancing concludes the meeting in an energetic and lively way.

Fig. 2 – Lesson's structure



Fig. 3 – Körper and Leib



5. Discussion

Dancing finds its most proper historical and cultural collocation in the educational arts context, whose area of knowledge is shared by similar arts (music, theatre, visual arts) in order to develop a defined set of attitudes and competences. All the arts promote the development of a perception and thinking skill different from that of other disciplines: a thought that is intuitive, flexible, open to imagination, neither linear nor stringent. Therefore, the arts are fundamental components of our history, our culture and last but not least our education.

Although the arts are not yet given the right weight in the institutional Italian school, devoid of appropriate tools and skills in the artistic field, dancing has a precise collocation within the most recent regulatory references. We want to underscore that dancing is already part of the scholastic curriculum of many world's countries, which means that many nations question themselves on the modalities of access in the school. In Italy, only in recent years, research on the introduction of dancing in children's education has aroused interest and curiosity.

Although dancing is not mentioned in the Programs '85, it appears for the first time in the National Programs 2007 and in the current National Programs 2012, which promote an use of dance as a means to convey emotional and affective experiences through gestures and body language.

Its collocation in the physical education discipline emphasizes the connection with the education on one hand and the body and the movement on the other. Dancing has the ability to associate and combine the physical development with the expressive and emotional one.

The sciences argue that the person does not exist without a body revealing its soul and the soul cannot exist if it does not express itself through the body. The body and the psychic are two separate poles that influence each other in a circular way within a single system, the person. And the educational process have to refer to both (Gomez Paloma 2009). Dancing can concretely accomplish this integration. Its aim is to combine body and mind and train the former, for it represents the means through which one can find good qualities because they are natural, innate, and reflect the anatomical structure of the body.

The body is the reference point of the child, it links him to other children and to the world, it is the means through which he expresses and becomes aware of himself therefore building his own identity.

In this regard, the German philosopher Edmund Husserl uses two different words referring to the body: the *Körper*, defined as a tool-body, according to which I can state that "I have a body", and the *Leib*, termed as the body that lives and is dwelled, for which I can state that "I am a body". It is pretty different having a body from being a body (Edmund Husserl, 2002).

When dancing enters the school context it gives primary importance to the *Leib*, an expressive body that moves intentionally to communicate and experience and it denies the word's predominance.

It also underlines the partiality of physical education that, in many cases, is still too based on the tool-body (*Körper*) that can be trained according to a sportive functional perspective.

Dancing values the body as a personality constitutive element and starts from the concept that by training the body we can train the feeling, the thought and accordingly shape the person.

In this way it becomes educational dance where the adjective 'educational' wants to mean a dance teaching that looks at the person more than at the dancer training and is referred to a specific context, the school context. It is a type of dance aiming primarily at the expressive awareness of the movement. It is conceived as an artistic and expressive body language that integrates the pupils' physical and psychological development and not as a specialized path aimed at the dancer's artistic education. It is not based on standard movements to be conveyed to

pupils but it promotes more natural shapes of moves that are being conceived and recognized as such in order to become expressively aware movement (Franca Zagatti, 2009).

Thanks to dance it is possible to achieve goals in psychomotor, cognitive and affective areas, standing in a playful and socializing context.

From a psychomotor point of view, dancing encourages the physiological strengthening because it represents a muscle gymnastic very important for the harmonic development of the organism.

The action of dancing involves all muscles, including the musculature that is not usually employed in daily movements and risks to remain atrophic for its reductive use.

Dancing's exercise affects the osteoarticular system as a whole, the blood circulation and the internal organs. It increases the respiratory ability and strengthens the cardiac muscle, encouraging at the same time the tissues' oxygenation with considerable advantages for every organism's functions (Guido Giugni, 1986).

Moreover, dancing improves other abilities such as the quickness and accuracy of the movement, the vasomotor and visual-spatial coordination but also the laterality and segmental coordination.

Because of the kynesthetic sensations it carries out (postural, thermal, tactile and pain sensations), the body pattern becomes wide. We cannot know much of our body if we do not move it. Finally, dancing consolidates and improves static and dynamic motor patterns that are essential for the movement organization.

For what concerns the cognitive aspect, dancing encourages the spatial-temporal organization: it helps the child to acquire concepts about space and orientation (forth and back, right and left, near and far) and develop notions about time and rhythmic structure (slow and quick, before and after). Dancing improves the development of the rhythmic sense: the rhythm is expressed through the movement and our body is the main tool that allows us to live and express it. Through dancing the student learns to acknowledge different types of rhythm in which the movement can be expressed or he can adapt his movement to the rhythms required by different situations.

It is important to help the child to become aware of the fact that every movement repeated with steady pace in time is a rhythmic activity. Examples of this can be bouncing a ball, marching , jumping, etc.

Furthermore, rhythmic sense will help the child in his school path (in language- reading- writing learning process).

Finally, from an affective-relational standpoint, dancing is an art that fosters socialization, facilitates integration, promotes dynamic relations, stimulates the self-esteem and also helps to overcome relational problems between students of different sex which are quite marked in compulsory schooling.

6. Conclusion

On the basis of the arguments here reported, we foster to consider educational dancing as a valuable tool for the formation of everybody. The right education should not aim at introducing even more notions in the student's mind, rather it would have to chaperon them toward their own trust, the knowledge of their body and of the world. The self is not just the body, neither the mind nor the feelings. It is the overall being and dancing puts it in relation with all three aspects simultaneously.

Through dancing the child understands how his body, his mind and his imagination work. He learns what his body can do, what kind of strength and energy he has. For example, while he is jumping he acquires the meaning of jumping. As a result, not only he reaches the self-awareness and learns to use the movement as a tool of communication with other children, but he perceives the change of his movement according to emotions and sensations as well. Dancing can help to free him from an uneasiness or a fear hidden inside him.

By acting as a trait of union between cognitive and emotional, dancing can actually teach children to "dwell" their own body.

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The role of lecturer related factors in students' perceptions and satisfaction in distance education

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Abstract

Technological advances have a huge impact on our lives. Education is no exception to this. For the last twenty years, many universities and educational institutions are trying to find new ways and methods in order to successfully use internet-based technologies in teaching and learning through distance learning initiatives. But traditional face-to-face classroom teaching paradigm is falling behind in the effective use of these technologies in education; hence we need a new teaching and learning paradigm in order to use online technologies in education effectively. The purpose of this study is to examine the affecting students' satisfaction in distance learning platforms with specific emphasis on the role of lecturer related factors on the satisfaction. A survey was carried out on 465 students attending the MBA distance education program at the Sakarya University of Turkey. Findings provide evidence on the role of lecturer on student satisfaction in distance learning programs.

Keywords: distance education, lecturer, student satisfaction

1. Introduction

Technological advances influence all aspects of modern life. These influences are not limited to changes making human life easier or changes making our lives more colorful, it also shows its influence on teaching methods and learning procedures used throughout our lives. Advances taken place during the last ten years in communication and education technologies force us to change the existing paradigm for education and teaching. In light of technological advances, traditional face to face classroom teaching methods and learning approaches tend to lag behind in meeting needs of existing society. As a response to these changes, use of advances in communication and educational technologies as well as social media applications in order to increase the effectiveness of traditional teaching methods was common practices. This approach was not satisfactory in meeting the changing needs for learning and teaching methods, hence we need to adopt new learning methods and teaching models in education and modify traditional learning approaches and teaching methods to fit the needs of today's society's educational needs.

In this context, traditional face-to-face classroom teaching methods were questioned with respect to the meeting the changing needs of contemporary education system and some educators suggested the distance education model as a solution to the weaknesses of tradition education system. To this end, many distance education technologies were employed to overcome the shortcomings of traditional education systems. But this approach was proven to be ineffective due to paradigm differences between traditional classroom teaching and distance education system. There are a number of reasons for the failure in an attempt to substitute of distance education technologies in traditional education system. First, lecturers with the traditional education mentality wanted to use his/her views for the new approach requiring a different paradigm. Second, factors determining

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success in distance education were different from that of the traditional mentality. Third, the rolls for teachers and students were different for both approaches. These and other reasons have led to dissatisfaction with results of traditional teaching methods and hence finally resulted with student dissatisfaction. For this reason, it is imperative to understand the requirements of new teaching and education approach (distance education) in the satisfaction of students as well as to determine the antecedents of student satisfaction with distance education system. Hence, the purpose of this study is to identify the factors leading to satisfaction with distance education as well as the role of teacher related factors in the satisfaction.

2. Student Satisfaction in Distance Education

Studies indicate that there is an increasing demand for the distance education methods and technologies in developed countries in lieu of traditional face-to-face interactive classroom teaching programs. Hence it is argued that internet-based and/or distance education programs and courses will be playing more important and critical roles in the future education (Allen and Seaman, 2010). Findings of the literature indicate that there are no significant differences between the traditional classroom teaching methods and distance education programs in terms of outcomes, but there seems to be some differences between the two in terms of student satisfaction (Allen et al., 2002; Settle and Settle, 2007).

Student satisfaction is an important indicator of the quality of learning experience. There are a number of studies on the determinants of student satisfaction with distance education (Bolliger and Martindale, 2004; Reinhart and Schneider, 2001; Sahin, 2007). Wagner et al. (2005) pointed out that there are numerous factors influencing student satisfaction and program performance. Quality of course materials, content of the course, quality and the type of interaction between student and lecturer, interaction with other students, student satisfaction and the structure and presentation style of the course are among those mentioned factors. Even there are studies aimed at modeling student satisfaction with distance education programs via SEM (Structural Equation Modeling) approach (Şahin and Shelley, 2008).

Since the nature of the relationship between students as well as students and lecturers are different in distance education, it is worth to examine the determinants of satisfaction with distance education programs and courses (Yukselturk and Yildirim, 2008). The quality of interaction between lecturers and students are mainly related to, in addition to the distance education technology used, the ability and desire of lecturers to adopt and use the new technology as well as the level of expertise on the distance education technology. Also, lecturer's knowledge of and desire to use interaction methods and tools in line with the new technology will determine the quality of distance education (Parsad and Lewis, 2008). Lack of self confidence as well as poor knowledge level in the use of new technology are likely to lead to low performance or even failure for both lecturers and students, hence to poor satisfaction (Kaminski vd., 2009). Compared to traditional classroom education, in distance education platforms, students have more responsibility in lecturer-student interactions. But it seems inevitable that lecturers' knowledge, expertise and experience in the adoption of new teaching platforms will play critical role in the adoption process (Moore and Kearsley, 1996). Any weakness in this respect is likely to result in low student satisfaction (Puzziferro, 2008).

Periodical assessment and evaluation are important factors in distance education programs. Depending on the aim of the distance education program or course, the assessment procedure is carried out from different dimensions (Olmstead, 2007). In this respect, common practice is to use student scores as an indicator of student performance. But, besides student success scores, there is another factor which is equally important for the success of distance education programs is students satisfaction and enjoyment with the learning experience in the program as an indication of the quality and value of the program (Noel-Levitz, 2011). Student satisfaction is not just an indicator of the quality of students' learning experience, it is also provides us with cues regarding the quality of the program, student loyalty as well as a means in attracting new students to the program or the course

(Allen and Seaman, 2008; Debourgh, 1999; Moore and Kearsley, 1996; Pike, 1993). Creating satisfied students may help improving the quality of education as well as moderate students' resistance to new teaching process and platforms. Hence it is critically important for the program developers, course content designers, educators as well as managers to understand the determinants of student satisfaction with distance education in order to identify the areas needed to improvement and development (Reinhart and Schneider, 2001; Wagner vd., 2005).

3. Research Method

For the purpose of this study, a questionnaire was carried out on students at the distance education MBA program of the Sakarya University with the aim of student's evaluation of the program and their satisfaction with the program and individual courses. This questionnaire is carried out at the end of each term in order to assess the program and individual courses for the purpose of seeking out potential improvement areas as well as developments for the program.

Fieldwork for this study was conducted on January 2013 and May 2013 in two stages. 550 questionnaires were distributed but only 465 of them were usable for the statistical analysis. Of those, 265 were collected during January study, and the rest is collected during the May period. The reason for conducting the study in two stages is try to see if the improvements and various precautions implemented as a result of previous study was effective or not and to make comparisons between two time zones.

Questionnaire was carried for all the courses included in the program. Students are allowed to make evaluations on each course as well as each lecturers involved in a course. The questionnaire was made up of three sections. In the first section, there were questions assessing the quality of the courses as well as the lecturers in terms of some quality indicators. Among these indicators, lecturer's presentation ability, content of the course, quality and sufficiency of the course materials, quality of videos, support of lectures with daily examples, attitudes and behaviors of lecturers towards students, student participation in live lectures, lecturers' ability to respond questions reasonably and effectively, integration of theory and practice in courses, technological infrastructure of the distance education program, ease of communication with lecturers, usefulness of homework in learning processes as well as administrative supports given by the Institute offering the program are some of them. Students assessed each course on these matters on a 5-point quality scales (1-Very bad ... 5- Very Good). In the second part of the questionnaire, there are questions regarding satisfaction with the course (1-10 scale), assessment of lecturer's performance (0-100 scale) and the assessment of overall course performance (0-100 scale). In the third section of the questionnaire, there were questions related to overall MBA program assessment and students' satisfaction with overall program performance. These questions were rated with 5-point Likert type scales. Also, an open-ended question was given at the end of the questionnaire in order to receive any comments or suggestions or complaints about the courses and programs.

4. Analysis and Evaluation

In the context of analysis, various descriptive statistics, t-test analysis, correlation analysis as well as regression analysis were conducted. Results and evaluation of these analysis are given below.

4.1. Demographic Characteristics of the Participants

In the context of this study, 465 people participated to the survey. Of those, 28% of them were female, 26% of them with an age of 25 or lower, 42,8% of them were in the age 26-35 age groups. Nearly all of participants (95,5%) were employed. In terms of occupations, the sample was rich in terms of variety. Among them are engineers, bank workers, lecturers, civil servants, sculptures, chemists, sellers, marketers, auditors, etc.

4.2. Evaluation of SAU e-Business Distance Education Program

In the context of the study, students were evaluated a total of fourteen courses and twenty-two lecturers. Evaluation was covered both Spring and Fall terms of the program. Assessment procedure was carried out on fifteen quality parameters and the results of this assessment are given in Figure 1, below.

In figure, there seems to be students were rated high (high scores) for most of the parameters in the assessment of distance education programs. Lowest assessment was given for the administrative support services for the program due to the problems associated with reaching the contact person as well as getting help in case of need. Students tend to rate technological infrastructure, integration of theory and practice and live course applications as “good”. These results indicate that students tend to behave reasonably and rationally in the assessment process. It can be argued that SAU e-Business MBA program is rated very good in respect to factors related to lecturers’ ability to present, communication skills of the lecturer, lecturer’s ability to respond students’ questions logically and reasonably and lecturers’ attitudes towards students

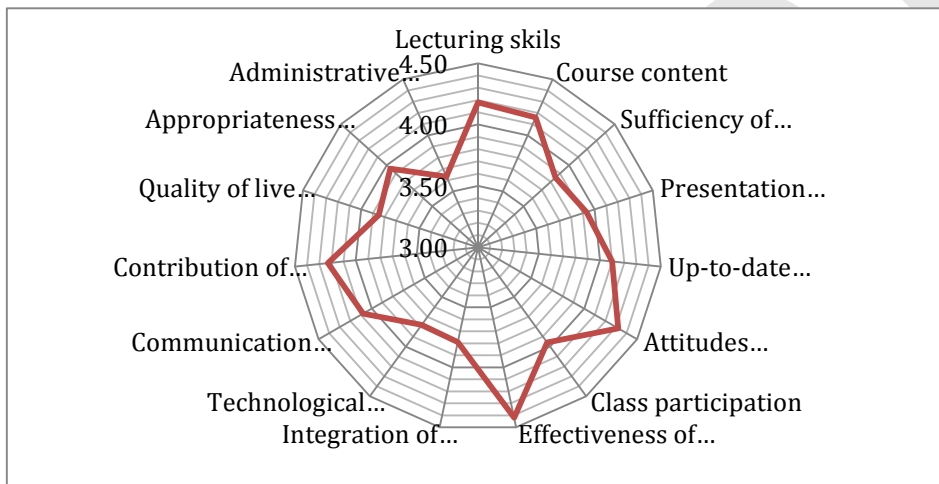


Figure 1- Students' Assessment of SAU e-Business MBA Program

As mentioned earlier, the study was carried out in two different time zones. As a result of first study, the program administrators have taken several steps and precautions in order to improve some problems mentioned in the first study. Among these precautions, the incentives for the lecturers to spend more time for the interaction with students, enrichment of course materials and live lectures with more daily cases and up-to-date examples, selection of homework topics with more caution, and setting up exams in such a way encouraging students to make their judgments on the matters rather than repeating basic knowledge. Also, lecturers were required to reply student requests within two days time period. The results of second study has proven that there significant improvements for nearly on all aspects of the improvement initiatives of the early period (Nearly all changes were significant for t-test results).

4.3. Overall Evaluation of SAU e-Business Program

A summary of students' responses in relation to quality variables in distance education, which have influence on student satisfaction, was given in Figure 1 above. Besides these results, it is believed that students' perception of, and satisfaction with the distance education courses and overall assessment of the distance education program will provide us clues in regard to the performance and development of the distance education program in general. The results of this assessment are shown in Table 1. Table shows that there is an overall satisfaction with the SAU e-Business MBA distance education program. Findings indicate that the SAU e-Business MBA distance education program plays an important role in students' career developments. But there seems to be some areas where there is a potential for improvement. Respondents tend to argue that program's content and overall quality was underperforming the expectations; hence, despite overall satisfaction with the program, there is a need for improvement in the content of the existing program as well as course contents.

Table 1- General Evaluation Towards and Overall Satisfaction With the SAU e-Business MBA Program

Statements	(N=465)	Mean	Completely disagree	Slightly disagree	Neither agree nor disagree	Slightly agree	Completely agree
			%	%	%	%	%
SAU e-Business MBA program meets my expectations.		4,12	2,0	2,3	13,3	46,6	35,8
SAU e-Business MBA program is important for my carrier.		4,10	2,0	2,0	16,7	42,8	36,4
My education experience in the SAU e-Business MBA program is satisfactory.		3,75	2,7	6,3	20,9	54,5	15,7
I suggest this program to my friends.		4,15	2,9	4,5	12,4	35,7	44,3
The content of the program meets my expectations.		3,93	2,0	7,6	18,4	39,5	32,5
It was a right decision to choose SAU e-Business MBA program.		4,08	4,3	1,6	17,9	34,5	41,7
How do you rate the quality of the SAU e-Business MBA program?*		3,93	0,9	3,6	19,5	63,0	17,5
How satisfied with the SAU e-Business MBA program?***		4,11	2,9	3,4	7,4	52,7	33,6

*: 1- Very Bad 5- Very Good ***: 1- Never Satisfied 5- Completely satisfied

In order to examine the relationship between overall satisfaction scores and lecturers' performance assessments of the respondents, a correlation analysis was conducted. The result of this analysis is summarized in Table 2. A review of the table would indicate that there is a strong correlation ($r > 0,9$) between the assessment scores of individual courses and lecturers' assessment score and overall program evaluation scores for the program. This may be considered as an internal consistency of various assessment scores for the distance education program evaluated. Besides, all correlation coefficients in the table are significant at 1% level and magnitudes of coefficients are above 0,4, which is an indication of strong correlation among measures.

On the other hand, there is a strong correlation ($0,67 < r < 0,811$) between overall assessment scores and overall satisfaction scores with the SAU e-Business MBA program. This was an expected result since the scales used to assess overall satisfaction of respondents is proven for their reliability and validity in assessing overall satisfaction and overall performance assessment for the program.

But a detailed review would lead us to point out that there seems to be relatively lower correlation overall program evaluation scores and lecturer assessment scores of the respondents. This finding might be interpreted in such a way that students do not evaluate the distance education courses by only taking into lecturers' performance, but they take into account many other factors in their assessment process.

Table 2- Correlation analysis among various satisfaction indicators*

	Lecturer's score	Satisfaction score with the course	Overall course success score	Choice of SAU e-Business as a right decision	Program content meets the expectations	Suggest to friends	Satisfactory education experience	Evaluation of e-Business program
Course satisfaction score	,866							
Overall course success score	,918	,922						
Choice of SAU e-Business as a right decision	,256	,353	,361					
Program content meets the expectations	,352	,446	,443	,694				
Suggest to friends	,366	,424	,419	,760	,717			
Satisfactory education experience	,317	,430	,442	,681	,698	,667		
Satisfaction with e-Business program	,374	,432	,419	,803	,701	,809	,659	
Evaluation of e-Business program	,306	,422	,394	,760	,676	,760	,607	,811

* All correlation coefficients are significant at 1% significance level.

4.4. Factors Determining e-Student Satisfaction

One of the aims of this study was to examine the role of lecturer related factors in student's satisfaction with distance education programs. To this end, a regression analysis was conducted; results are summarized in table 3. In the table, there are three regression models evaluated. The first model examines the relationship between various quality related variables and student's satisfaction with the distance education course. The second model

tries to establish if there was a relationship between the same quality variables and lecturer's assessment scores. The third model searches for the existence of a relationship between quality related variables and overall course performance scores.

Table 3- Regression Analysis for Student Satisfaction with SAU e-Business MBA Program

Variable	Dependent Variable: Satisfaction with the course*			Dependent Variable: Lecturer's success score**			Dependent Variable: Course success score**		
	B	Beta	t	B	Beta	t	B	Beta	t
Constant	-2,46		-4,60	-8,94		-2,24	-7,27		-1,72
Ability to lecture	0,657	0,271	3,97	4,628	0,229	3,84	6,512	0,316	4,87
Presentation style	0,526	0,244	3,52	-	-	-	3,813	0,207	3,07
Ability to respond	0,457	0,175	3,42	-	-	-	-	-	-
Sufficiency of materials	0,347	0,165	2,95	2,586	0,162	3,43	-	-	-
Contribution of homework assignments	0,282	0,117	2,37	1,905	0,095	2,27	3,068	0,149	3,45
Class participation	0,245	0,111	2,19	-	-	-	-	-	-
Attitudes towards students	-	-	-	5,387	0,240	4,62	0,266	0,116	2,16
Up-to-date examples	-	-	-	4,017	0,219	4,27	2,983	0,159	2,76
Communication with lecturer	-	-	-	3,308	0,166	2,83	-	-	-
R		0,87			0,90			0,90	
F (Significance level)		82,19 (p<0,000)			116,74 (p<0,000)			105,66 (p<0,000)	
R ² (Level of explanation)		%74,4			%80,9			%79,3	

* - (1-10 point scale) ** - (0-100) point scale

A review of the table indicates that nearly 75% of variation in dependent variables is explained by dependent variables in all three models. All three models are significant and all quality related variables have different levels of exploratory power on dependent variables. Only the significant variables for any of three models are shown in the table. Those variables, which were not significant, are excluded from the table. Results indicate that lecturing quality and homework assignments' contribution to learning experience are considered an important factor in the formation of student satisfaction, student's evaluation of lecturer as well as overall course performance assessment. Lecturing ability and style of lecturer is the most significant factor determining student satisfaction and performance perceptions with the distance learning activity. Presentation style of the lecturer was not a significant parameter in the evaluation of lecturer performance although it plays significant role in the formation of course satisfaction and overall course performance assessment. Furthermore, lecturer's ability to respond and the quality of responses to the questions raised by students and the quality of course materials is significant determinants of student satisfaction with distance education courses.

Most significant factor in the evaluation of lecturer's performance are attitudes towards students, lecturing skills and lecturers ability to support lectures with current day-to-day examples. Also ease of communication with the lecturer and the quality of course materials are considered as significant predictors of lecturer performance.

Lecturing ability and presentation styles of the lecturer are considered significant determinants of the overall course evaluation in the distance learning courses. Similarly, attitudes towards students and supporting lectures with current events and examples play significant role in student's overall course performance assessment.

4.5. Conclusions and Evaluation

In light of abovementioned findings, it can be concluded that lecturer related factors play significant role in the formation of students' satisfaction and course evaluation process. But results indicate that students tend to utilize different parameters in the assessment of course satisfaction, lecturer performance and overall course performance perceptions. Especially lecturer's attitudes towards students, communication styles with students as well as lecturers interaction quality are most influential factors in lecturer's performance evaluation. Besides, quality and contents of course materials and the usefulness of homework assignments were important predictors of lecturer quality and performance. In other words, we can conclude that students tend evaluate those lecturers with smiling face, easy to communicate, good communication styles, gentle attitude towards students and serious in his work highly. But lecturer's communication style tends to relatively less important in student's satisfaction with distance education course. Satisfaction is mostly related to lecturing ability, quality and content of the course materials, usefulness of homework assignments and lecturers response quality and styles.

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The university-industry cooperation and its practical application in the Czech Republic

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Abstract

The aim of this paper is to present the advantages and limitations of university- industry cooperation . This issue is currently very important because of the employability of university graduates in the future. Hence the interest in mutual cooperation of universities and companies. The article presents the results of an empirical research carried out from two perspectives. The former focuses on the interest of students in employment in economic and management professions, the latter presents the results of a survey looking into the interest in cooperation between the branches of multinational companies and universities engaged in tertiary education in the Czech Republic. The results indicate students' interest in their active involvement in the practice itself during college, and lower interest in cooperation with universities shown by branches of multinational companies in the Czech Republic in particular .

*Keywords:*Tertiary education; cooperation; practice; students

1. Introduction

The contemporary educational system is based on the participation of more actors involved in the education policies that have a direct impact on the way and the chosen method of educational process. Several groups of actors in education policy can be distinguished: elected politicians, school administration, teachers and their organizations, parents and their associations, students, churches, employers and educational experts (Kalous, 1997). They differ not only in the interests they represent, but also in their access to resources (financial and information), in the number of contacts or in the extent of influence they have on decision-making. (Hloušková, 2006). Needs of the participation of teachers with professional sphere, i.e. theorists and professionals were discussed in *Practical Education* (1798), where the authors first mentioned the importance of using a real example to complete the theoretical concept, which leads to a higher perception of shared phenomenon (Edgeworth & Richardson, 1994).

Another important book dealing with the need of the synthesis of theoretical and practical concept of education was written by the John Dewey (1938), a critic of the traditional concept of education. Also the state officials of the European Union are well aware of the importance of practical education in the tertiary sector – that is research and development. Practical training at university level is supported by the Operational Programme Education for Competitiveness, which is co-financed by the European Social Fund and the state budget of the Czech Republic. (Source: European Social Fund).

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This program gives rise to projects aiming to promote practical education at universities and colleges.

The need for practical application of theoretical concepts is apparent in all areas of education. Nowadays, its importance is increasing particularly at universities supported by application practice in companies and public and state administration institutions.

Ideally, practical training should mean mutual use of knowledge and skills of both companies, students and university teachers. Research and development, provides universities with access to new knowledge, with the possibility of its practical applications. On the other hand, the application sphere should participate in education and train more practical oriented employees. Benefits can thus be found on both sides of the participating actors.

Given the potential benefits, the cooperation between universities and practice, represented by subsidiaries of multinational companies is observed.

This may represent an interesting view on the development of mutual cooperation for the economy in the post-transition period, where the Czech Republic can be included. Suggestions of the Ministry of Education regarding the future of science and research, define the current troubled state of cooperation between universities and the business community represented mainly by companies. An obstacle is defined as a condition where the infrastructure for knowledge transfer from public research to practice does not exist. Agreements on cooperation between universities and industry are largely formal. In view of these facts, it is important to identify the interest of cooperation between universities and the application area and the corresponding adjustment of assistance (source: Ministry of Education, Youth and Sports, 2012).

2. Methodology

Description and processed results of internship implementation into the syllabus are based on the information from Masaryk University, Faculty of Economics and Administration, which serves as an example for the presentation of the issue. The information covers the period between 2006-2012. The results are evaluated by the graphic display. The sample of students represents about 10% of the students in one year. The issue of cooperation between universities and their practical application was dealt with using methods of qualitative and quantitative research, the sample of 335 subsidiaries of multinational companies operating in the Czech Republic (Blažek et al., 2011).

Answers in the questionnaires used an ordinal scale of 1 to 5, where 1 corresponded to significantly lower ratings to 10 significantly higher rating. The sample consisted of 335 branches MNC, which is 13.35% of the basic sample. From a sectoral point of view, the most represented MNC affiliates were in the industry section C - Manufacturing (59%), G - Wholesale and retail, repair of motor vehicles (13%), M - Professional, scientific and technical activities (6%) and section J - Information and communication (4%). These sections included 82% of the MNC affiliates.

Brief presentation of the sample shows that the proportion of the size of branches according to the number of employees was as follows: 24.2% from 50 to 99 employees, 39.7% from 100 to 249 employees and 36.1% more than 250 employees. In terms of their legal form, there were 20% of corporations and 80% of companies with limited liability.

Statistical processing of the survey was carried out after the completion of data collection, which was carried out by an external company specializing in collecting questionnaire data (address, data acquisition, processing in the

data matrix). Having been checked, the data were recoded and analyzed by the univariate analysis by defining the frequency of occurrence of each response and the arithmetic mean and standard deviation.

3. Results

3.1. The practice of university students in enterprises

If students are interested in optional internship with credit valuation within their field of study, they have to find a specific company where they will be able to work for some time. The interest of students is high; however, a problem arises on the side of companies. Results of the empirical survey show that the interest of businesses to provide students with the experience of business management is limited. The time student has for internship is relatively short - 120 mandatory hours. During this time the student cannot learn about applying theoretical concepts from economics and management.

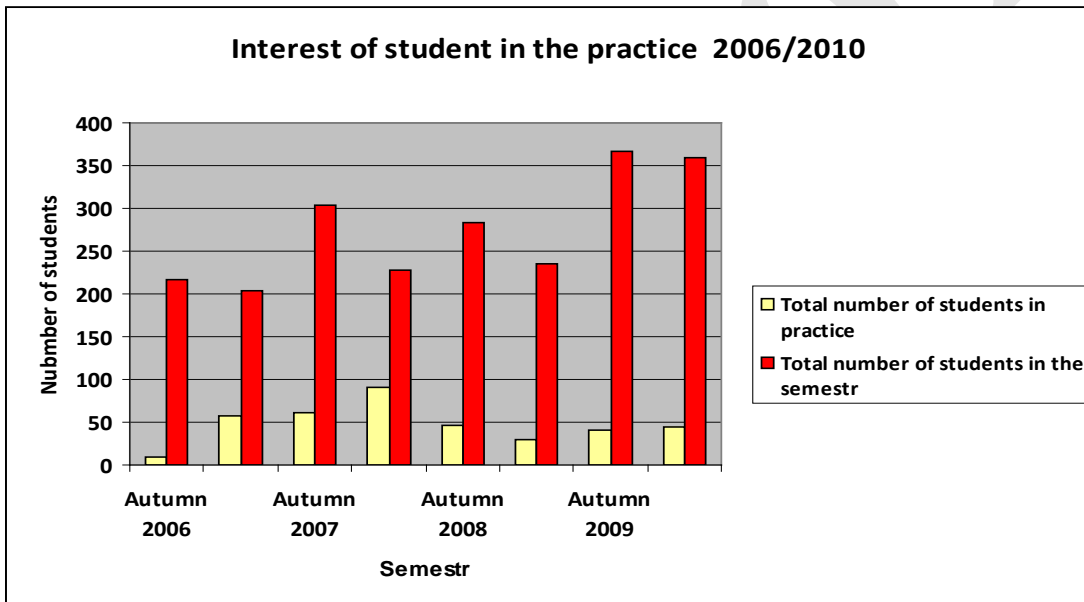


Fig.1:Interest of students in practice

The graph above shows that more than 10% of college students really prepare for work during their study. These are students who choose internship as an optional subject and have agreed on doing it in a specific company. The actual field of specialization at university is connected with the realization of internship. The fields of economics and management are associated with both a strong theoretical background of economics and practically oriented management. This is then reflected in possibilities students of particular disciplines have to ensure the internship and application potential after graduation.

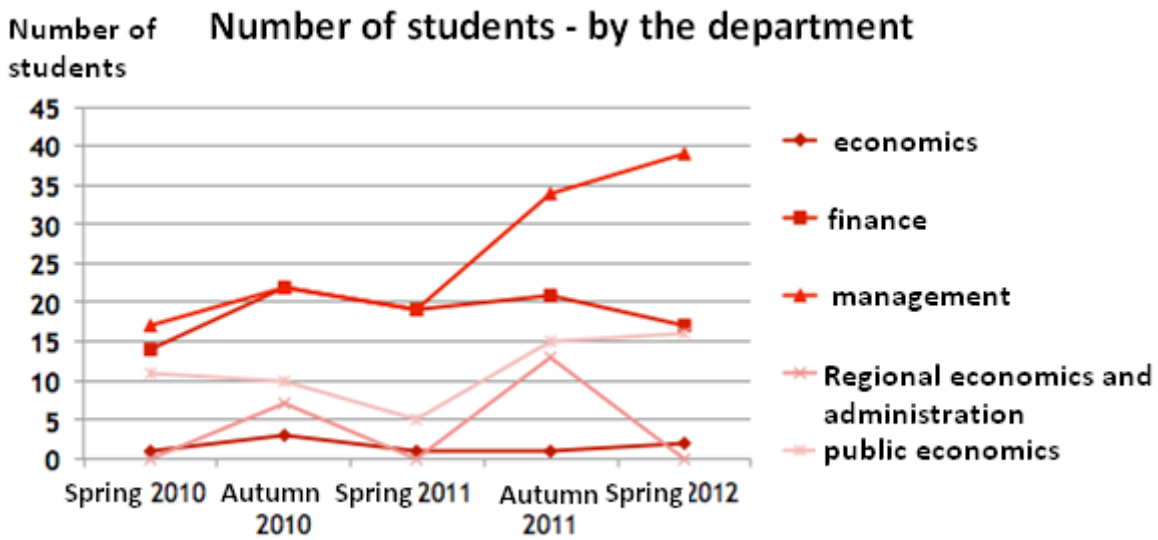


Fig.2: Number of students according the department

Students of disciplines with application potential, i.e. management and finance, are much more represented in the subject of internship. It also significantly associated with greater employability of graduates in these fields. In contrast, students of more theoretical fields, such as economics or public economics, have fewer options because offers of internship in enterprises, government organizations or public authorities are considerably less numerous and their application potential is much more limited. These trends are confirmed at the national level through the monitored indicators of employability of university graduates (Koucký & Bartůšek, 2012).

3.2. Cooperation between universities and the application area – Practice

Within the research of multinational companies in the Czech Republic in 2011, a survey was carried out by Masaryk University on cooperation between the business sector and colleges and universities (Blažek et al., 2011). Enterprises divided by the country of origin, were to identify the intensity of cooperation in the development of knowledge with universities and research institutes. The response range was between 1 to 10 points, where 1 meant no cooperation at all and 10 meant cooperation to a large extent. The question was answered by 331 respondents, which is nearly 99% subsidiaries of multinational companies represented in the file. The average number for each country is shown in the following table and graph.

Table 1. Cooperation intensity divided by the country of origin

Country of origin	Mean	N	Std. Deviation
Australia	3,0000	1	
Belgium	3,0000	12	2,69680
Brazil	5,0000	1	
Czech Republic	6,7143	7	1,70434
Denmark	5,2500	8	3,37004
France	3,8000	10	2,52982
Ireland	2,0000	1	
Italy	3,0000	8	2,77746
Japan	2,0000	9	1,41421
Cyprus	1,0000	2	0,00000
Liechtenstein	4,0000	1	
Luxembourg	3,2308	13	2,52170
Malta	0,0000	2	0,00000
Germany	3,2883	111	2,30961
Netherlands	3,9556	45	2,75479
Panama	1,0000	1	
Poland	3,5000	2	3,53553
Austria	3,5789	38	2,45645
Russia	7,0000	1	
Slovakia	1,5000	6	,83666
Slovenia	9,0000	1	
USA	4,0000	9	2,78388
Spain	3,5833	12	2,46644
Sweden	4,7500	8	2,05287
Switzerland	3,9167	12	2,57464
Great Britain	4,5714	14	2,47182
Total	3,5910	335	2,52827

The research shows that almost 60% of surveyed enterprises rely more on themselves in their innovation activities. Further investigation showed that companies which reported the maximum value of cooperation, i.e. 10, are from the manufacturing industry. A great deal of cooperation, i.e. 7-9 points, was shown by relatively most companies in the section Information and communication activities. It was also found out that the higher the increase in the number of employees in enterprises is, the greater the cooperation is. However, it should be noted

that this is a minimum of enterprises from different sectors without representativeness in the surveyed sample of subsidiaries of multinational companies.

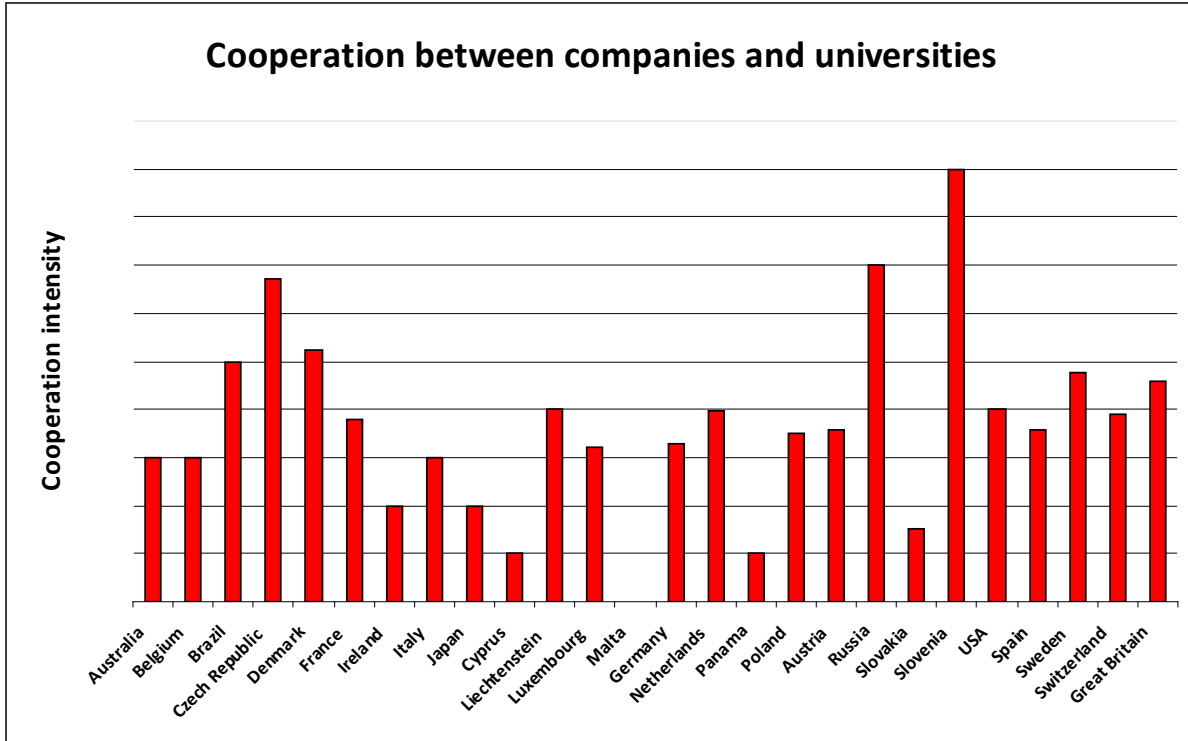


Fig.3: Cooperation between companies and universities 2010

In terms of the share of foreign owner, it shows that companies with an ownership stake of a foreign entity higher than 50% and less than 100% cooperate with external organizations to a lesser extent than companies that are wholly owned by a foreign entity.

Some correlation between the level of gaining knowledge in the context of cooperation with external entities is indicated when companies are analyzed according to their financial performance. It can be said in a very simplified way increasing financial performance means increase in the scope of cooperation with research institutions (Blažek et al., 2011).

The graphs show that the most significant cooperation with a limited proportion of the surveyed branches between the theoretical and the practical sphere, is in companies owned by Slovenian and Russian owners. These are followed by large degree of cooperation carried out by the co-owners from the Czech Republic and Denmark. On the contrary, cooperation between business and research sector does not take place in enterprises owned by owners from Malta, Cyprus and Panama. What is a very interesting finding is a very low cooperation with the nearest foreign neighbor - Slovakia.

4. Resume

Considering the issue, spending on research and development is a very interesting indicator. Except Liechtenstein, where expenditure on research and development is exceptionally high, the percentage of expenditure on research and development in developed countries is around 3%. Countries like Brazil, Cyprus, Panama, Poland and Slovakia are below 1%. These countries can also be characterized by very low cooperation between universities and branches of multinational companies operating in the country. This suggests that the lack of allocated funds measured by a GDP share on research activities is also reflected in the willingness of cooperation with universities.

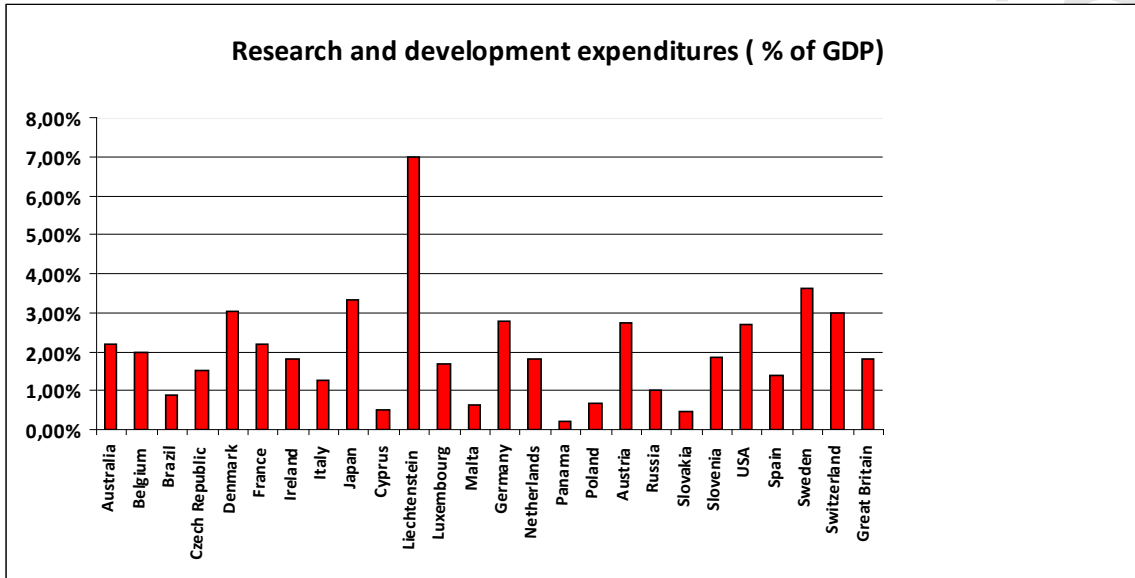


Fig.4: Research and development expenditure 2010 (% of GDP)

Investment in education, enhancing the knowledge and skills of citizens is a competitive advantage that can create new values, flexibility to respond to rapidly changing market needs and generate new ideas. The above mentioned information shows that countries which spend the highest percentage of GDP on research and development are aware of the fact. (Gola, 2012, OECD Factbook, 2011-2012).

5. Discussion

According to the OECD (OECD Factbook 2011-2012), expenditure on research and development is a driving force of national economies. Since 2000, global spending on research and development has been growing. The findings of surveys show that R & D support from the state has an impact on encouraging cooperation between institutions involved in research activities, represented by university, and private firms. The result of the cooperation benefits both parties, consisting in the development of employees who have the appropriate education and qualifications. An inseparable part is the experience that potential employees - university students gain during their studies.

The often criticized purely theoretical knowledge is slowly becoming a thing of the past. It has been shown that universities are trying to introduce courses focusing on the practical application of theoretical knowledge in their syllabi. In connection with the surveys, it is impossible to find out whether the application sphere is aware of the opportunities offered by at least a partial internship of students. A possible example of a successful link between teaching, practice and cooperation, is the establishment of high school Skoda - Auto, which offers degree programs in engineering and business management processes and management (source: www.savs.cz). Students of this type of schools start work having the advantage of domestic and foreign experience. Unfortunately, the research into collaboration of subsidiaries of multinational companies with universities proved that cooperation with Czech universities and research institutes is minimal. With regard to the number of subsidiaries of multinational companies represented in the empirical survey, it can be concluded that the level of cooperation is below average. The branches of multinational companies interviewed stated that the cooperation does not exist at all - 27.8% (total 92 branches) or only to a limited extent, 31.4% (104 branches). This is particularly noticeable among the largest foreign investors - Germany, where there is a limited cooperation with universities. High intensity of cooperation is shown only by 4 branches of multinational companies. It confirms the findings of the Ministry of Education, Youth and Sports of the absence of functional cooperation platform between application sector and universities. It is based only on formal declaration without significant results demonstrating the effectiveness of cooperation. In the near future, cooperation is expected between research and industry-based financing from public and private sources through indirect support (tax relief) and the purchase of scientific research results by the commercial sector through vouchers from (Czech) public research institutions and universities. The question in light of the findings remains how the declared support will be reflected in greater cooperation between universities and the application area with regard to benefits for all stakeholders.

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The usage of two level random intercept model specifications in the analysis of achievement in mathematics

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Abstract

Hierarchical models are highly useful tools for clustered and multilevel type of data and coefficients can vary by clusters in these models. In this study, several types of two-level random intercept model specifications are used to compare the mathematics scores of 8th grade students from three different safe and orderly levels of schools, after taking into account of variation both between classes and between students within the same class. The data obtained from Trends in International Mathematics and Science Study (TIMSS) 2011, released shortly, which is a large-scale international database and it shows trends in mathematics and science achievements at both 4th and 8th grades. Class size and weekly spent time on mathematics homework are emphasized in school and student levels, respectively. This study is conducted for Turkey, but it can easily be replicated for other countries enrolled TIMSS.

Keywords: two-level random intercept model, TIMSS 2011, mixed models

1. Introduction

School effectiveness studies mostly related to how the structure of schools influences the achievement of students, or the impact of teachers' characteristics on students' learning performance in addition to students' own attitude. As Kreft and Leeuw states; (1998) Cronbach and Webb (1975), Burstein et al. (1978) and Aitkin and Longford (1986) can be count as classical examples of these studies. The development of multilevel modeling in this area emerged during the 1980s among British researchers (see Creemers & Scheerens, 1989; Mortimore, Sammons, Stoll, Lewis & Ecob 1988a, 1988b; Willms, 1987a) and following these studies, hierarchical linear modeling was embraced in the United States (see Arnold, Kaufman & Sedlacek, 1992; Arnold & Sedlacek, 1995; Bryck & Raudenbush, 1989; Mullis, Jenkins & Johnson, 1994) for some national educational studies (Stemler, 2001).

To see the differences between treatments (which are schools or teachers), the most popular technique is ANCOVA, but this technique is not enough to answer the most important question in school effectiveness research which is 'Why do schools differ?' and many others beyond this question (Kreft & Leeuw, 1998, pg. 5). Also, ANCOVA is required the independence of error terms which is not the case for the most of the educational studies. A group of students in the same school or the same class share the same experiences, so it may not be realistic to assume the independence of observations. Moreover, this inevitable feature of educational studies makes the ordinary least square regression mostly inappropriate (Raudenbush & Bryk, 2002).

Especially in educational studies, researchers look for a method which integrates information about individuals and groups they belong to (classes/schools) and also, dependencies between these observations. The

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model handles with dependencies, that educational studies researchers look for, had already been used in other area of statistics, named linear mixed models (Hartley and Rao, 1967) or hierarchical linear model (Lindley and Smith, 1972) as in the Bayesian context (Leeuw and Meijer, 2008). The mentioned multilevel types of models are now internationally accepted tool to analyze the nested data which are mostly encountered in educational studies. The analysis part of this study includes different mixed model specifications and diagnostics.

TIMSS is the well-known international study, mainly mentioned in the next section, used for the application of the two-level random intercept model in this study. TIMSS data set has been used in substantive researches. Schreiber (2002) mentions in his study that there are several educational studies to explain achievement just with one factor such as attitude, beliefs, gender, parent education, employment, homework, school size, etc. Even one factor is crucial in these types of investigations; his study and several other educational studies recently include multilevel analysis with TIMSS data set. A multilevel analysis is applied in the present study and it includes both student and school levels variables which are *school safe and orderly* levels, class size as school level variables and weekly spent time on homework as a student level variable. Schools' *safe and orderly* levels are the main variable and they can be counted as one part of environment at the school level. The importance of the environment is highlighted in the education literature, and it influences behaviour of students and teachers and their consequent learning and teaching capacities (Hughes, 1991). Contrary to the well-known reports (Coleman et. al. 1966, Plowden Committee, 1967) which minimize the school effect, recent works show the researches that believe the importance of school effect on students' achievement is growing (Reynolds et. al. 2000, Hammond, 1999). In this study, it is found that *school safe and orderly* levels are significant in achievement; related results and model diagnostics can be found at the very end of the study.

2. Data

The Trends in International Mathematics and Science Study (TIMSS) is a project of the International Association for the Evaluation of Educational Achievement (IEA) and "it measures trends in mathematics and science achievement at the fourth and eighth grades in participating countries (approximately 60) around the world, while also monitoring curricular implementation and identifying promising instructional practices." (Foy et al., 2013). We conduct analyses for mathematics scores of 8th grade students in Turkey released in TIMSS 2011 database. Since the average scale score of Turkey in mathematics is below the TIMSS scale center point (500), it is desire to build an educational model for mathematics score to give a perspective for educationist and policy makers to improve the education quality in this country.

The average age of students at 8th grade is 14, 6928 students from 240 schools at 8th grade participated in 2011 study, %12 of 8th grade students with achievement is too low for estimation. The part of the TIMSS data, which we use, contains information about the mathematics scores which is our dependent variable, *schools safe and orderly* levels and class size (there is only one class per school) which are our school level explanatory variables, weekly spent time on homework which is our student level explanatory variable. The usage of school safety as a school level variable is highly common in educational studies; Mooij, Smeets and de Wit (2011) put emphasize on school safety in their multilevel study, Everett and Price (1995) conclude the necessity of safe environment in the schools. Along with the school level variables, student level variables are used in educational studies; Cooper, Valentine, Nye and Lindsay (1999), Keith and Cool (1992) use homework as a student level variable in their studies, as well. Class size (Mosteller, 1995) or school size (Haller et al., 1993) is also used in some educational studies, and some of them find it significant on students' achievement.

Safe and orderly school scale is a derived variable based on the agreement of teachers to 5 different statements which are related to the location of schools in a safe neighborhood, the degree of feeling safe, schools' security policies and practices, students behave in an orderly manner, the degree of students' respect to the teachers and Cronbach's alpha reliability coefficient of these items for Turkey is 0.85. Factor loadings depending on principal component analysis of these five items are 0.82, 0.84, 0.82, 0.75 and 0.71, respectively. TIMSS assessments

cover a broad types of topics in mathematics; so TIMSS team apply item response theory (IRT) scaling to describe students achievement for analysis and reporting purposes. Mathematics achievement scores used in this study is the linear transformation of proficiency scores which are obtained by the TIMSS team. Descriptive statistics for the related data set is following:

Table 1. Descriptive statistics for each level of *safe and orderly* schools (treatment) and weekly spent time on homework

Analysis Variable: Mathematics Score				
School Safety Levels	Weekly Spent Time on Homework	N	Mean	Std Dev
1 = Safe and orderly	More than 3 hours	189	452.74	94.90
	Less than 3 hours	2054	482.38	111.15
2=Somewhat safe and orderly	More than 3 hours	264	438.42	98.10
	Less than 3 hours	3091	447.42	107.16
3 = Not safe and orderly	More than 3 hours	88	405.21	89.14
	Less than 3 hours	922	409.96	92.77

3. Data Analyses

Two-level random intercept model is used to compare the mathematics scores of students from three different *safe and orderly* levels of the schools, after taking into account of variation both between classes and between students within the same class. Since TIMSS data are reported for students nested in classes where only one class sampled for selected schools, the data described in two levels which are student (level 1) and school level (level 2). *Safe and orderly* levels of schools and class sizes (centred to make the intercept interpretable) are taken as level 2 variables, while the weekly spent time on homework is taken as level 1 variable.

Different model specifications are implemented for this study. The first model includes the fixed effects of treatment, weekly spent time on homework, class size and the interaction between treatment levels and weekly spent time on homework in addition to a random effect associated with the intercept for each class and a residual associated with each mathematics score (Model 1). "proc mixed" in SAS (Littell et al., 1996) is used as an analyses procedure for each of the model specifications, it can be done in R with lme() function as well as HLM2 procedure in HLM. Following the first step, we test whether we should add class effect as a random effect or not. It is implemented by omitting random statement in the previous model. Different covariance structures for the residuals are tried to decide whether we use homogenous or grouped heterogeneous residual variances for the following models. The selection of variables and interactions are tried as a last step of the study. The data used for the present study is an unbalanced data, which is a common situation in educational studies, iterative numerical procedures are used to estimate in such cases (Raudenbush & Bryk, 2002). Detailed information will be given in hypothesis tests part, following the current section.

4. Model Specifications and Hypothesis Tests

The model of the present study is a combined hierarchical model includes the level 1 and level 2 predictors ($\beta_1, \beta_2, \beta_3$ and β_4), cross-level terms (β_5 and β_6), and the composite error ($u_j + \varepsilon_{ij}$). Since this model includes both fixed and random effects; it is named as linear mixed model (Gill, 2003). Different than the classical regression model, this model allows heterogeneous variance structures of the error terms (Sullivan et al., 1999). Moreover, this model is suitable to count for the dependencies between students in the same class; which is not possible with a classical regression approach. If the dependencies among students within the same class or school are ignored, this would lead to produce spurious 'significant' results (Hox, 2010). We give hypothesis tests in this part of the study, the related test results are placed in the results part.

Model 1: Mathematics scores (predictors) are specified on students $i=1 \dots n$ within j -th class $j=1 \dots J$ as following:

$$\begin{aligned} \text{Score}_{ij} = & \beta_0 + \beta_1 \times \text{SchoolSafety}(1)_j + \beta_2 \times \text{SchoolSafety}(2)_j + \beta_3 \times \text{Homework}(1)_{ij} + \beta_4 \times \text{ClassSize}_j \\ & + \beta_5 \times \text{SchoolSafety}(1)_j \times \text{Homework}(1)_{ij} + \beta_6 \times \text{SchoolSafety}(2)_j \times \text{Homework}(1)_{ij} \\ & + u_j + \varepsilon_{ij} \end{aligned}$$

$$u_j \sim N(0, \sigma_{class}^2)$$

$$\varepsilon_{ij} \sim N(0, \sigma^2)$$

In this model, mathematics score that must be in the lowest level of analysis is the outcome variable, class size, schoolsafety(1) and schoolsafety(2) are level 2 indicator variables, while homework(1) is a level 1 indicator variable. u_j is the random effect which is permitted to vary across classes and ε_{ij} represents residuals which will have different variance structure in the following models. It is taken to be the same for all levels of treatment in model 1.

For model 2, the random effect is omitted to check whether to keep the random class effects or omit them.

Hypothesis 1:

$$H_0 : \sigma_{class}^2 = 0$$

$$H_A : \sigma_{class}^2 > 0$$

To test this hypothesis a likelihood ratio test is used by subtracting -2 REML log-likelihood value of the first model from the corresponding value for our nested model which does not include random effects. Following the model 2, we try to select a covariance structure for residuals by trying heterogeneous residual variances for *safe and orderly*, *somewhat safe and orderly* and *not safe and orderly* schools (Model 3):

safe and orderly: $\varepsilon_{ij} \square N(0, \sigma_{so}^2)$

somewhat safe and orderly: $\varepsilon_{ij} \square N(0, \sigma_{sso}^2)$

not safe and orderly: $\varepsilon_{ij} \square N(0, \sigma_{nso}^2)$

The within-class variance in *not safe and orderly* schools seems to be smaller than the within-class variance in *safe and orderly* schools and *somewhat safe and orderly* schools, so for the next model, we try a common residual variance for these two levels of schools (Model 4). Another REML-based likelihood ratio test is used for the common residual variance structure. (We did not add some steps in between to give the compact information about model selection part.)

safe and orderly/somewhat safe and orderly : $\varepsilon_{ij} \square N(0, \sigma_{so/sso}^2)$

not safe and orderly: $\varepsilon_{ij} \square N(0, \sigma_{nso}^2)$

Hypothesis 2:

$$H_0 : \sigma_{so/sso}^2 = \sigma_{nso}^2 = \sigma^2 \text{ (homogenous variance structure)}$$

$$H_A : \sigma_{so/sso}^2 \neq \sigma_{nso}^2 \text{ (pooled variance structure)}$$

For the next step, we test whether to keep *safe and orderly* school levels and weekly spent time homework interaction with following hypotheses (Model 5):

Hypothesis 3:

$$H_0 : \beta_5 = \beta_6 = 0 \text{ (interaction effects)}$$

$$H_A : \beta_5 \neq 0, \beta_6 \neq 0$$

For the last model (Model 6), we use the same residual variance structure but without interaction effects. The last hypothesis is not about model selection, it is used to test whether the fixed effects associated with school levels are equal to zero in our final model.

Hypothesis 4:

$$H_0 : \beta_1 = \beta_2 = 0 \text{ (fixed effects)}$$

$$H_A : \beta_1 \neq 0, \beta_2 \neq 0$$

It is assumed that the random effects are associated with the class-specific intercept for all models.

5. Results

Since the test statistics for hypothesis 1 is significant ($p < 0.001$), the random effects associated with class-specific intercepts are retained in the model. A grouped residual variance structure is preferred model, the test statistics for hypothesis 2 is significant ($p < 0.001$). After constructing the model with a random intercept associated with each class and grouped variance structure for the residuals, the reduction of non-significant interaction or fixed effects is checked with hypothesis 3 and 4. The treatment by spent time on homework interaction is removed from the model, since the test statistics for hypothesis 3 is not significant ($p = 0.29$). Hypothesis 4 is the last one of this part and the test statistics indicate significance of treatment levels ($p < 0.001$). We can test hypothesis 6 with ML-based likelihood ratio test by fitting model 5 and model 6 using ML estimation and the same hypothesis can be tested with the type III F-test. Related test values can be found the table below:

Table 2. Hypothesis test results

Hypothesis Label	Test	Estimation Method	Models Compared (Nested vs. Reference)	Test Statistic Value(*)	p-Value
1	LRT	REML	2 vs. 1	$\chi^2_{(0;1)} = 80304.3 - 78851 = 1453$	< 0.00
2	LRT	REML	1 vs. 4	$\chi^2(1) = 78851 - 78825.4 = 25.6$	< 0.001
3	Type III F-Test	REML	4(**)	F(2,2433) = 1.21	0.29
4	LRT	ML	5 vs. 6	$\chi^2(2) = 78896.7 - 78862.9 = 33.8$	< 0.001
4(Alternative)	Type III F-Test	REML	6	F(2,232) = 18.21	< 0.001

LRT: Likelihood Ratio Test

(*): 'For nested models, the difference in deviance has a chi-square distribution with degrees of freedom equal to the difference in the number of parameters that are estimated in the two models' (Hox, 2010, pp.16)

(**): F-test for the fixed effects associated with treatment \times homework based on the fit of model 4 is used.

The main effects which are the levels of *safe and orderly* schools are both positive and significant ($p < 0.01$). It is estimable from these results that the mean mathematics score of students in *safe and orderly* schools and *somewhat safe and orderly* schools are 69.68 and 37.17 higher, respectively, than the mean math score of students in *not safety and orderly* schools (Related results are placed at Table 3).

The main effect of weekly spent time on mathematics homework is significant ($p < 0.001$) and has negative effect on mathematics scores of students. It is estimable from these results that the mean math score of students

who spent more than three hours on homework 12.45 lower than students who spent less than three hours for math homework. Even the negative coefficient for *weekly spent time on homework* seems nonsense; it may be caused by students who have problems with mathematics spending more time on homework which is the same situation in the educational study of Leeuw and Meijer (2008). Lastly, class size is not statistically significant ($p=0.678$). Although there are some studies (Mosteller 1995) find class size significant on students' achievements, our result is similar to the one that Woessman (2003) finds non-significance for East Asian countries. Related results can be found at the table below:

Table 3. Solution for fixed effects

Effect	School safe and orderly	Weekly spent time on math	Estimate	Standard Error	DF*	t Value	Pr > t
Intercept			404.13	18.1708	233	22.24	<.0001
SCHOOLSA	Safe and Orderly		69.6786	12.1118	223	5.75	<.0001
SCHOOLSA	Somewhat Safe and Orderly		37.1664	11.4654	222	3.24	0.0014
SCHOOLSA	Not Safe and Orderly		0
(Control Group)							
WEEKLYSP		3 Hours Or More	-12.4525	4.2245	6366	-2.95	0.0032
WEEKLYSP		Less Than 3 Hours	0
(Control Group)							
SIZE			0.1925	0.4636	236	0.42	0.6784

*Degrees of freedom for t statistics are computed by using Satterthwaite method in SAS

In addition to the results defined above, we show the similarity of students within a class with intra-class correlation coefficients which calculated by using the estimated variance components from the last model. While the estimated ICC measures of two groups are quite close to each other, the estimated ICC is lower for the pooled group; since there is more within-class variation in that group.

$$\text{Not Safe and Orderly: } ICC_{class} = \frac{\sigma_{class}^2}{\sigma_{class}^2 + \sigma_{not\ safe\ and\ orderly}^2} = \frac{3089.57}{3089.57 + 6589.78} = 0.32$$

$$\text{Safe and Orderly (1) Somewhat Safe and Orderly (2): } ICC_{class} = \frac{\sigma_{class}^2}{\sigma_{class}^2 + \sigma_{1/2}^2} = \frac{3089.57}{3089.57 + 8517.26} = 0.27$$

After refitting the last model without class size variable, the formula of the predicted mathematics scores of a student i from class j is as following:

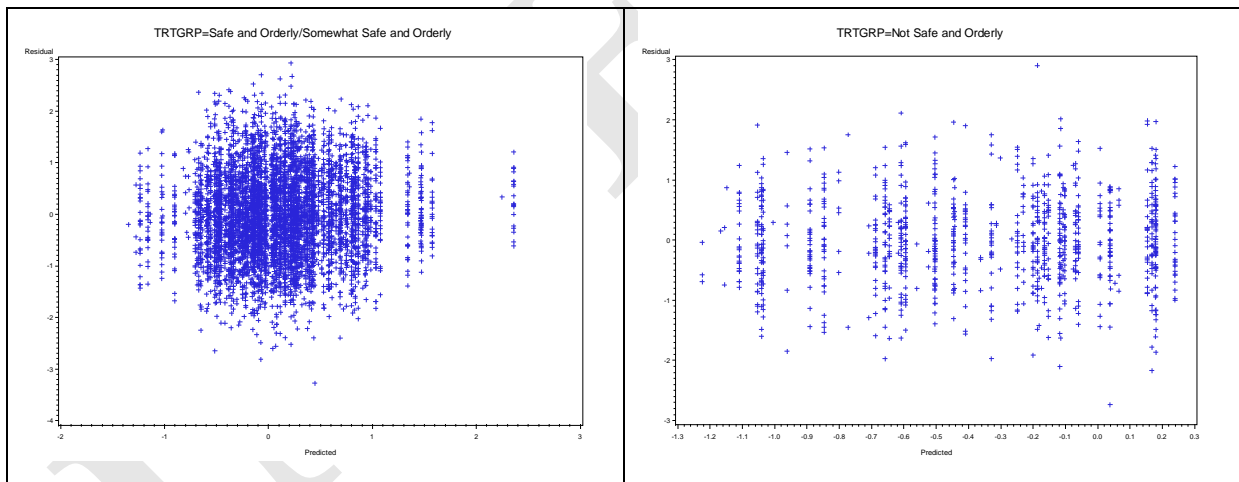
$$Score_{ij} = 404.13 + 68.68 \times SchoolSafety(1)_j + 34.68 \times SchoolSafety(2)_j - 12.47 \times Homework(1)_{ij} + \hat{u}_j$$

The predicted value of u_j (EBLUP) is the random class effect for the j -th class, each class (so do school) has its own model. SAS provides the conditional predicted values for each student under *outpred* option placed in an output data set. Mathematics scores are mostly the same for all students in a particular class. However, it differs for some students because of weekly spent time on homework which is a student-specific variable in the model.

6. Model Diagnostics

The conditional residuals for the last model are saved on a file with *outpred* option in *proc mixed* procedure for the implementation of model diagnostics. Normality assumption is checked for pooled group and not safe and orderly group separately and p-values for the normality tests are 0.01 and 0.50, respectively. Normality assumption is violated for the first group but not for the second one. Checking the plot of the conditional raw residuals vs. predicted values by each level of treatment groups, we do not observe constant variance for not safe and orderly schools (right panel), and we do not see the exact constant variance situation for the pooled group (left panel). Related graphs are followings:

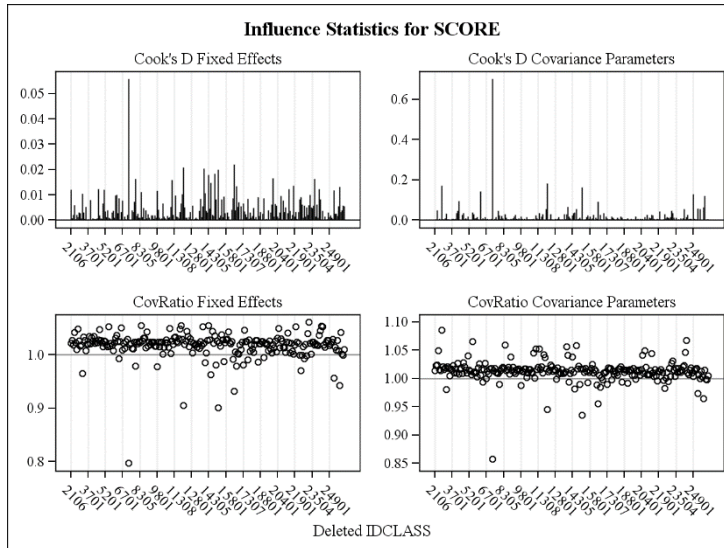
Figure 1. Scatterplots of conditional raw residuals vs. predicted values in safe and orderly/somewhat safe and orderly group (left one), and not safe and orderly group.



We use boxplots of each litter with studentized residuals and observe some outliers, but omitting these students does not make any differences on results; we say they do not influence the final estimates of fixed effects (this paper does not include them because of the space limits). Figure 2 shows the effect of deleting one class at a time on the Cook's D and CovRatio of fixed effects (left panels) and covariate parameters (right panels). Class 7302 which belongs to the pooled group has a large influence according to these graphs, and the last model is

refitted excluding this class. It makes any differences on fixed effect parameters and a little difference on estimated residual variance for the pooled group. It could be important to state that mixed models are well designed models for the missing data and unbalanced data.

Figure 2. Influence Statistics for Mathematics Score



7. Comments

Since the focus of this study is mostly on the model specifications, particularly the pooled variance structure, we try not to use too many variables; rather we choose four distinctive variables. This study is conducted for mathematics scores of 8th grade students in Turkey released in TIMSS 2011 database, but it can easily be replicated for science scores and for other countries enrolled TIMSS. However, researchers should be careful about countries characteristics, different dynamics of countries may lead to concentrate on different types of models (Delaney, 2000). After checking educational studies in the literature, the exponential increase in the interest on students' achievement in national and international manners is observed. We plan to enlarge the study with more variables and to implement country based-comparison studies.

This study shows a snapshot of achievement at one point in time from a cross-sectional sample of students from Turkey. In addition to this type of studies, the observation of development in a particular country is possible with the comparison of scores from several assessments. This type of studies are needed more complex structures. Related examples and more are found about multilevel analysis in Handbook of Multilevel Analysis (Leeuw and Meijer, 2008), in Linear Mixed Models (West et. al. 2007) which is mostly emphasized on applying software packages and Introducing Multilevel Modeling (Kreft and Leeuw, 2002).

As Keeves (1995. pp.169) states "national development is sustained by an educational system of high quality which provides not only a well-trained work force but also a well-educated citizenry", we aware the importance of education and the value of each work for the development of education.

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4th International Conference on New Horizons in Education

The use of a simulation model to assess the problem of enterprise competitiveness

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Abstract

At this point in the international community has developed a tendency to use technology to help improve the competitiveness of educational institutions. The purpose of this paper is to determine the role of simulation in the field of modern education as one of the innovative technologies. This article shows the possibility of using simulation in the economic processes on the example of assessing the competitiveness of the insurance company. Also the article covers a review of available software simulation and helps to make reasoned choice of one of the simulation tools.

Keywords: innovative technology, simulation, modeling tools, competitiveness, the flow of events

1. INTRODUCTION

The prospect of development of the education sector as a factor of socio-economic and intellectual potential of society is to improve the quality of education. Techniques used for this purpose, leading ultimately to an increase in the competitiveness of the institution and the specialists prepared by that institution. Improvement of quality of education can be achieved through training and re-training human resource, timely renovation of technology and access to global information resources, as well as using new information technologies. One of the innovative learning technologies is simulation. First of all, the aim is to build a simulation model adequately phenomena, processes, structure of reality.

Completed model will depend on the setting of the problem, as well as the experience and capabilities of the developer. That is, for a research subject many different models can be built. Secondly, in the experiments with the developed models different situations can be reviewed by changing the parameters, and it is possible to select a particular solution. Furthermore, by examining the behavior of a simulation model can be found and new features and patterns that influence the result. Building a simulation model and conduction simulation experiments are active teaching methods, the use of which leads to an increase in the quality of students' knowledge. Testing phase of the model can be compared with the game. In the book Clarin M.V. (1995) "Innovation in the global pedagogy: teaching based on research, games and discussions. (The analysis of foreign

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experience)", the notion of "game", from psychological point of view, is presented as a model of social interaction, a means of learning attitudes. Simulation models can be created in the form of a training program and in the form of a game. It becomes possible to conduct "what if" experiments, you can analyze the behavior of the model when you change certain conditions. In the transition from the simplest examples of simulation to complex models is recommended to involve groups of students. As a result, students gain practical knowledge and teamwork experience, develop communication skills, become responsible and initiative. The use of simulation techniques forms the students' skills, such as the ability to correctly analyze the problem under study, correctly formulate the statement of the problem, identify the target and set the algorithm to achieve it, the ability to produce the optimal solution and justify it.

2. Research

As an example of the use of simulation in the economic sector consider the formulation of the problem of research objects of the insurance market in the Republic of Kazakhstan, in a formalized manner and choice of simulation software. Analysis of competition leads to the formation of techniques to improve the competitiveness of the object of considered industry. Since the concept of competitiveness is a complex category that affects the strategy and also tactics of the object, researcher should refer to some formalization of objects. For this purpose we make an attempt to structure the characteristics and factors of competitiveness object. At this point it is important to note the granularity of developed model. The desire to build a simulation model close to real object with adequate results of work often leads to redundancy characteristics of the object involved. The high granularity causes the increase of the project cost and complexity of the structure of the simulation model.

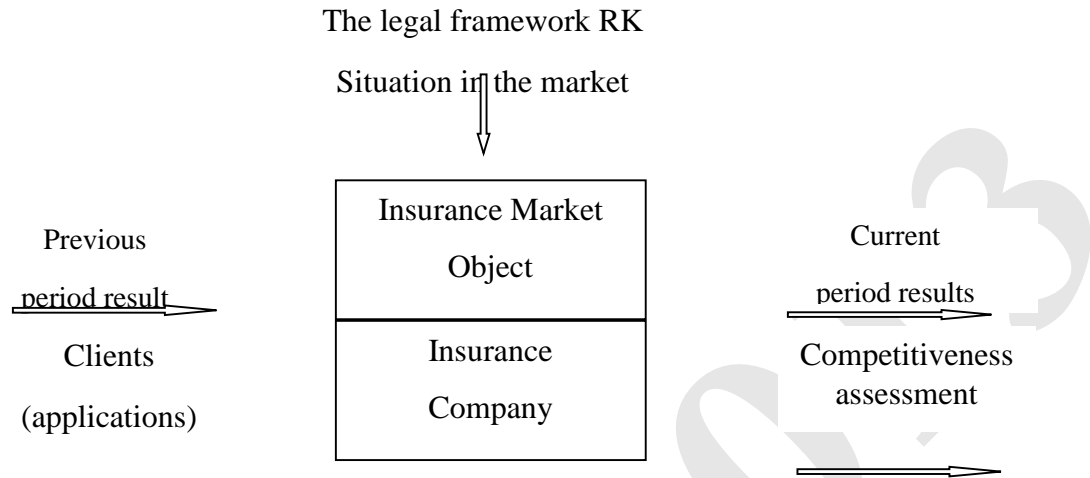
Objects of the market can be described in terms of business management, marketing management activity or motivation of labor, etc. That is, there arises the problem of selecting those aspects of the object that are appropriate for the task of the study. Every economic entity characterized by a certain financial status at any point in its life cycle.

Let $Q_i(x_1, x_2, \dots, x_n)$ - the object of the insurance market, where $i \in \overline{(1, S)}$,

S - the number of objects considered the industry,

x_j - the model parameters, n - number of selected parameters.

As the model parameters we take the main characteristics of the financial condition, such as financial stability, solvency, profitability, liquidity, investment attraction. As the main data base for calculating the coefficients of financial condition we will consider publicly available reports of insurance companies, such as balance sheet and income statement. Then the simplified scheme of informational flow of insurance company can be displayed as follows:



Picture 1. Informational Flow Scheme

Application or a contract of insurance is the main element that forms the financial performance of the organization. The set of applications pending and waiting for their turn, and the insurance company in a formalized representation in the form of a multi-channel unit can be seen as a queuing system. Since the flow of applications for insurance contracts at a specific interval of time in no way depends on where is the considered time interval on the time axis, we can conclude that the flow of applications is stationary. In addition, insurance contracts have the same priority. When considering corporate clients we can talk about grouping conventional insurance contracts. From the previous arguments, we conclude that the flow of applications is homogeneous and non-ordinary. The flow of events has the property of absence of aftereffects, because the number of applications in some period of time does not depend on the number of applications in another interval of time. Customers look to the insurance organization, independently of each other, because each of them is motivated differently. So, we can say that in this case there is a simple flow of events, i.e. a stationary Poisson process. Then, the distribution function can be written as

$$F(t) = 1 - e^{-\lambda t},$$

where λ - the average number of events per unit of time, t - time.

By differentiating, we obtain the distribution density

$$f(t) = \lambda e^{-\lambda t},$$

Lets calculate the expected value

$$M[t] = \int_0^{\infty} t f(t) dt = \lambda \int_0^{\infty} t e^{-\lambda t} dt = \frac{1}{\lambda}$$

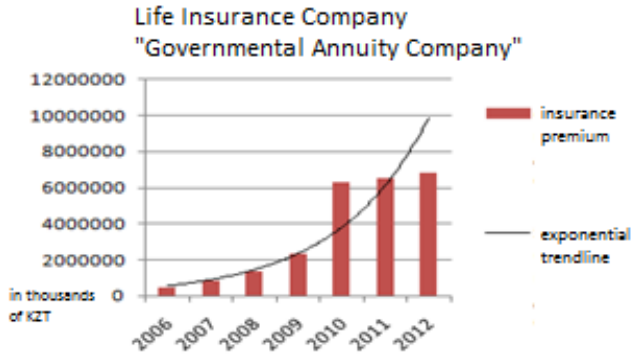
The dispersion is equal to

$$D = M[t^2] - M^2[t] = \frac{1}{\lambda^2}.$$

The probability that k events occur in T time can be found out by Poisson law

$$P_k(T) = \frac{e^{-\lambda T} (\lambda T)^k}{k!}.$$

Each of the accepted application (contract) as a result brings a certain amount in revenues. Income of insurance organization implicitly reflects the number of existing and new contracts in monetary terms, then the data for a certain period of time can be represented as a bar graph and we can draw a trend line (Picture 2).



Picture 2. Trend line according to "Governmental Annuity Company" company data

Simulation includes three main types of modeling based on discrete-event approach, system dynamics and agent-based modeling. There are a large variety of software that implement the task of simulation, for example Plant Simulation (Tecnomatix, eM-Plant), Stella, iThink, Pilgrim, Arena, AnyLogic, product family GPSS (GPSS Cloud, GPSS / H, GPSS / PC, GPSS World , WebGPSS). As modeling tools can use universal mathematical systems with MATLAB SIMULINK library or set of Mathcad and VinSim (Visual Simulation). For the system dynamics are more commonly used tools: iThink, ModelMaker, PowerSim, VenSim. Most modeling tools are suitable for discrete-event approach.

Developers of simulation models usually use special modeling tools. Simulation models allow conducting a large number of experiments in which we can solve optimization problems, and also make possible to choose the most appropriate solution in the resource management, in planning the strategy and tactics of the enterprise. The article "Some aspects of the adequacy of the simulation of discrete-event processes" (2011) Boev V.D. considers various problems, such as determining expected value of production of some number of details for the period of time, the model of the network connection, the model of providing repair services, as well as the solution of inverse problems. Were used software products as GPSS and AnyLogic, and the results do not differs a lot. Thus, it can be concluded that it is possible to apply any of these products. According to the article of Ingolf Stall (2001) GPSS has a half century of development history [2], but is still widespread in the present. But taking to account the fact that the GPSS user interface, models editor are less efficient than modern simulation tools, we decided to use AnyLogic. Using the methods of system dynamics, we can conduct a financial analysis of the market object for competitiveness. The task of assessing the competitiveness is multifactorial, i.e. requires an analysis of the influence of the parameters on the behavior of the modeled system. In AnyLogic implemented a simple experiment, optimization, Monte Carlo simulation, sensitivity analysis, calibration, custom experiment etc. In AnyLogic realized a wide range of tools for the task, and it is possible to use visual aids, such as charts, in a dynamic way. In addition, the AnyLogic you can switch from using discrete-event approach to agent-based modeling, or in one large model combine different approaches. The article of the authors Vlasov S.A., Devyatkov V.V., Devyatkov T.V. (2009) "Universal Modeling Environment for the development of simulation applications," noted the reduction of time and resources on the creation of simulation applications.

3. Conclusion

Simulation modeling is an important and demanded tool for many disciplines, including in the economic sphere. Nowadays a lot of attention is paid to factor in competitiveness across countries, industries, businesses. The task of evaluating the competitiveness is multifactorial, thus, requires analysis of the influence of parameters on the behavior of the modeled system. Using the methods of discrete-event simulation modeling approach, it is possible to conduct a financial analysis of the object for the competitiveness in the market. Simulation business games allow developing management skills, to analyze the quality and the results of experiments. Within the simulation solved the problem of active learning, support of decision making, design and research processes of the real world.

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4th International Conference on New Horizons in Education

The views of pre-service classroom teachers about nature of technology

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Abstract

The aim of this study is to determine the views of pre-service classroom teachers about nature of technology, the relationship between technology and science, the relationship between technology and society, and social construction of technology. Pre-service classroom teachers have been joined in this research. In order to determine the pre-service teachers' views about the nature of technology "Views on Science-Technology-Society (VOSTS) which was designed by Aikenhead, Fleming and Ryan (1989) instrument was used. Seventeen questions has been selected form VOSTS and adopted to the Turkish. At the end of the research, 4th class pre-service classroom teachers have more realistic views on relationship between technology and science, influence of technology on society than other pre-service classroom teachers. 3rd class pre-service classroom teachers have more realistic views on important of technology for research and development than other pre-service classroom teachers. It has been reached that pre-service teachers have misconceptions about the nature of technology. Although the pre-service teachers have acceptable views about definition of technology, these pre-service classroom teachers have realistic views about influence of society on technology. However, the pre-service teachers have inadequate views about relationship between technology and science, because the pre-service teachers not know the technology advancing as independent from science.

Keywords: Views on nature of technology, Pre-service Classroom Teachers, Misconception, Science, Technology, Society.

1. INTRODUCTION

It has been stated in many sources that '*Individual's understanding of technology and its mutual interaction with science and society*' is one of the aspects of scientific literacy which is one of the most important objectives of modern science education (AAAS, 1993; NRC, 1996; YÖK, 1997; Hurd, 1998; Bybee, 1999; Murphy, 2001). When we look at the acquisitions in Science, Technology, Society and Environment (STSE) learning domains, we see the nature of science and technology (MEB, 2005; MEB, 2006).

Being related with science, encompassing the design, encompassing the production, being multidimensional, being related with values, shaping the society and being shaped by the society exist in the nature of technology. Technology can develop new products by benefiting from the information provided by fields of science. The tools developed by technology can contribute to revealing new scientific information. For instance, tools like

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* This study was prepared by Yusuf Zorlu, " Investigation of the preservice science and technology teachers? and preservice classroom teachers? wiews on nature of technology "'s thesis is based on the Master's Degree.

telescopes and microscopes were invented as our knowledge on optics advanced. These tools provided opportunity to discover new celestial bodies, to better understand the structure of living things, and to diagnose and treat diseases (Çepni and Çil, 2009).

Science constitutes humankind's efforts to understand and explain the physical universe (Türkmen, 2006). According to Bertrand Russell, science is the effort to find the laws that bind together the phenomena regarding the world and the universe via observation and observation-based expression. Einstein, on the other hand, defines science as an attempt to make the chaotic diversity of our sense experience correspond to a logically uniform system of thought (Aydm, 2009). The word technology means "a craft that comes from knowledge" in ancient Greece (URL-1). The concept of technology, which has been used to define "systematic behavior" since the 17th century, has fundamentally gained a broader meaning since the 20th century (Çelik, 2006). Technology constitutes the changes that people make in order to live more easily (Kıyıcı, 2007). Technology is composed of the entirety of the changes that people make in the natural environment in line with their aims (Rose ve Dugger, 2003). The relationship between science and technology comes from the fact that science constitutes the studies that are conducted in order to understand the natural world. Technology constitutes the changes that people make in the natural world using their abilities. Science and technology are different from each other, but they exist together. Technology covers much more than the implementation of science. Similarly, science covers much more than the implementation of technology (ITEA, 2000). There is a close relationship between technology and science. Technology can develop new products by benefiting from the information provided by sciences. The tools developed by technology can contribute to revealing new scientific information. For instance, tools like telescopes and microscopes were invented as our knowledge on optics advanced. These tools provided opportunity to discover new celestial bodies, to better understand the structure of living things, and to diagnose and treat diseases (Çepni, 2009). There is a close relationship between society and technology. Technology affects every phase of society. Technological advancements affect society positively or negatively. Technological developments occur in line with the social structure, cultural structure, demands and requirements of society. Characteristics of societies affect technology positively or negatively (Zorlu, 2011). Technology is not independent from the society in which it was born and developed. Social change arises out of the interpersonal changes that are fundamentally affected from the technological change. A technological invention becomes a part of our daily lives every day and even every hour. The world is gradually becoming smaller. We can have all kinds of communication facilities wherever we are thanks to cell phones, fax machines and emails. All kinds of news ranging from various cultural activities to incidents like wars or famine are immediately conveyed to our homes on a regular basis. Internet is used by millions of people around the world. Televisions, telephones and computers will soon become the products of a single technology (Tambini, 2000).

A scientifically literate individual is a person who knows what technology is, how it emerged, how it shapes society and how it is shaped by society. These individuals are impartial and comfortable in the use of technology. They know why technology and its use are important for the country as well as the effects of technology on environment. Scientific and technological literacy mean individuals' developing their skills of questioning, critical thinking, problem solving and decision-making; their becoming the individuals who keep on learning throughout their lives; their constant curiosity towards the world; and their having the required science-related skills, attitudes, values, understandings and information (MEB, 2005).

2. Method

This study is a survey study that aims to depict the views of pre-service classroom teachers on the nature of technology.

2.1. Research Problem

What do pre-service classroom teachers think about the nature of technology in terms of their class levels?

2.2. Population and Sample

The universe of the research is composed of pre-service classroom teachers. The sample of the research is composed of the pre-service classroom teachers who are third-year and fourth-year students at the Faculty of Education in Firat University.

2.3. Data Collection Tool

2.3.1. Survey Views on the Nature of Technology (VOSTS)

Pre-service classroom teachers have been joined in this research. In order to determine the pre-service teachers' views about the nature of technology "Views on Science-Technology-Society (VOSTS) which was designed by Aikenhead, Fleming and Ryan (1989) instrument was used. This survey used changing "Survey Views on the Technology" adapted to the Turkish by Aydın (2009). This Survey Views on the Nature of Technology consists of seventeen questions which are about technology (two questions), the relationship between technology and science (four questions), the relationship between technology and society (eight questions), and the social construction of technology (three questions).

2.4. Data Analysis

Regarding the quantitative data, a descriptive statistics study was conducted in order to depict the participating pre-service teachers' views about class level. The obtained descriptive statistics were compared with the data that was obtained from the survey views on the nature of technology. Then, they were analyzed with the chi-square test.

3. Findings and Interpretation

According to the chi-square test, no significant difference was found among the views of the pre-service classroom teachers in terms of their class levels in this question that was related to the definition of technology ($p > .05$) (Table 1). It is observed that the pre-service classroom teachers generally have an has merit of view.

Table 1. The Chi-square test results of the answers given by the pre-service classroom teachers to Question 1 of the VOSTS-TR survey in terms of their class levels.

Groups	Naive (%)	Has Merit (%)	Realistic (%)
4.Clasroom P.C.T	22,9	51,4	25,7
3.Clasroom P.C.T	20,0	63,8	16,3

$p > .05$

Technology is important for the research and development in the industry. According to the chi-square test, a significant difference was found among the views of the pre-service classroom teachers in terms of their class levels in the question that asked what research and development in industry generally meant ($X^2= 6.41$; $p=.041$) (Table 2). It is observed that the third-year pre-service classroom teachers embraced a more realistic view than the fourth-year pre-service classroom teachers. It is observed that the fourth-year pre-service classroom teachers embraced an has merit that “Research is exploring new facts, ideas and information. Development is putting them to use by coming up with new and creative ideas”.

Table 2. The Chi-square test results of the answers given by the pre-service classroom teachers to Question 2 of the VOSTS-TR survey in terms of their class levels.

Groups	Naive (%)	Has Merit (%)	Realistic (%)
4.Clasroom P.C.T	10,8	64,9	24,3
3.Clasroom P.C.T	23,2	40,2	36,6

$X^2= 6.41$; $p=.041$

According to the chi-square test, no significant difference was found among the views of the pre-service classroom teachers in terms of their class levels in the question related to the relationship between technology and science ($p>.05$) (Table 3). It is observed that the pre-service classroom teachers generally have a realistic point of view.

Table 3. The Chi-square test results of the answers given by the pre-service classroom teachers to Question 3 of the VOSTS-TR survey in terms of their class levels.

Groups	Naive (%)	Has Merit (%)	Realistic (%)
4.Clasroom P.C.T	13,9	11,1	75,0
3.Clasroom P.C.T	24,7	20,7	53,7

$p>.05$.

According to the chi-square test, a significant difference was found among the views of the pre-service classroom teachers in terms of their class levels in the question that was related with the relationship between technological researches and scientific researches ($X^2= 14.64$; $p=.001$) (Table 4). It is observed that the fourth-year pre-service classroom teachers have a more realistic view than the third-year pre-service classroom teachers. It is observed that the fourth-year pre-service classroom teachers embraced a realistic view that “Because science and technology interact and complement each other equally”. It is observed that the third-year pre-service classroom teachers rather embraced an has merit that “Because scientific knowledge is needed to make technological advances”.

Table 4. The Chi-square test results of the answers given by the pre-service classroom teachers to Question 4 of the VOSTS-TR survey in terms of their class levels.

Groups	Naive (%)	Has Merit (%)	Realistic (%)
4.Clasroom P.C.T	11,1	19,4	69,4
3.Clasroom P.C.T	34,6	33,3	32,1

$X^2= 14.64$; $p=.001$

According to the chi-square test, no significant difference was found among the views of the pre-service classroom teachers in terms of their class levels in the question related to the fact that technology does not always require scientific discoveries ($p>.05$) (Table 5). Technology can advance with science or on its own. When we look at Question 5 of the survey that was written around this main idea, it is observed that the pre-service teachers generally have a naive point of view.

Table 5. The Chi-square test results of the answers given by the pre-service classroom teachers to Question 5 of the VOSTS-TR survey in terms of their class levels.

Groups	Naive (%)	Has Merit (%)	Realistic (%)
4.Clasroom P.C.T	57,1	42,9	0
3.Clasroom P.C.T	56,9	38,7	2,7

$p>.05$.

According to the chi-square test, no significant difference was found among the views of the pre-service classroom teachers in terms of their class levels in the question related to the relationships among the existence of good technology experts in society, providing more science courses in schools for the students in society and the advancement of technology ($p>.05$) (Table 6). It is observed that the pre-service classroom teachers generally have a realistic point of view.

Table 6. The Chi-square test results of the answers given by the pre-service classroom teachers to Question 6 of the VOSTS-TR survey in terms of their class levels.

Groups	Naive (%)	Has Merit (%)	Realistic (%)
4.Clasroom P.C.T	11,1	5,6	83,3
3.Clasroom P.C.T	18,2	19,5	62,3

$p>.05$.

Science and technology penetrate into our lives very rapidly. Only individuals who know how to utilize science and technology will be able to advance technology in the future. The use of technology in the future by society depends on the support given to scientists, engineers and technicians. This also depends on how students who will form the societies of the future use science and technology. According to the chi-square test, no significant difference was found among the views of the pre-service classroom teachers in terms of their class levels in Question 7 of the survey ($p > .05$) (Table 7). It is observed that the pre-service classroom teachers generally have a realistic point of view.

Table 7. The Chi-square test results of the answers given by the pre-service classroom teachers to Question 7 of the VOSTS-TR survey in terms of their class levels.

Groups	Naive (%)	Has Merit (%)	Realistic (%)
4.Clasroom P.C.T	2,8	11,1	86,1
3.Clasroom P.C.T	6,1	25,6	68,3

$p > .05$.

According to the chi-square test, no significant difference was found among the views of the pre-service classroom teachers in terms of their class levels in the question related to the degree to which technology help people make some moral decisions ($p > .05$) (Table 8). It is observed that the third-year pre-service classroom teachers generally have a realistic point of view whereas the fourth-year pre-service classroom teachers generally have an naive point of view.

Table 8. The Chi-square test results of the answers given by the pre-service classroom teachers to Question 8 of the VOSTS-TR survey in terms of their class levels.

Groups	Naive (%)	Has Merit (%)	Realistic (%)
4.Clasroom P.C.T	58,8	5,6	35,3
3.Clasroom P.C.T	36,5	10,3	52,7

$p > .05$.

According to chi-square test, no significant difference was found among the views of the pre-service classroom teachers in terms of their class levels in the question that was related with the effect of technology on legal decisions of the individuals in society ($X^2 = 11.94$; $p = .003$) (Table 9). It is observed that the fourth-year pre-service classroom teachers have a more realistic point of view than the third-year pre-service classroom teachers. It is observed that the fourth-year pre-service classroom teachers rather embraced a realistic view that “By developing ways to gather evidence and by testifying about the physical facts of a case”.

Table 9. The Chi-square test results of the answers given by the pre-service classroom teachers to Question 9 of the VOSTS-TR survey in terms of their class levels.

Groups	Naive (%)	Has Merit (%)	Realistic (%)
4.Clasroom P.C.T	25,0	5,6	69,4
3.Clasroom P.C.T	58,2	6,3	35

$X^2= 11.94$; $p=.003$

According to the chi-square test, no significant difference was found among the views of the pre-service classroom teachers in terms of their class levels in the question that was related with the fact that utilizing technological developments will affect society negatively or positively, and the positive and negative effects of technological developments on society must be balanced ($p>.05$) (Table 10).. It is observed that the pre-service classroom teachers generally have a realistic point of view.

Table 10. The Chi-square test results of the answers given by the pre-service classroom teachers to Question 10 of the VOSTS-TR survey in terms of their class levels.

Groups	Naive (%)	Has Merit (%)	Realistic (%)
4.Clasroom P.C.T	13,9	5,6	80,6
3.Clasroom P.C.T	26,3	8,8	65,0

$p>.05$.

According to the chi-square test, no significant difference was found among the views of the pre-service classroom teachers in terms of their class levels in the question related to the fact that technology offers help in resolving our social problems ($p>.05$) (Table 11). It is observed that the pre-service classroom teachers generally have a realistic point of view.

Table 11. The Chi-square test results of the answers given by the pre-service classroom teachers to Question 11 of the VOSTS-TR survey in terms of their class levels.

Groups	Naive (%)	Has Merit (%)	Realistic (%)
4.Clasroom P.C.T	10,8	5,4	83,8
3.Clasroom P.C.T	20,3	3,8	75,9

$p>.05$.

According to the chi-square test, no significant difference was found among the views of the pre-service classroom teachers in terms of their class levels in the question related to the fact that the more technology develops in a society, the more that society develops in parallel with this development ($p>.05$) (Table 12). It is observed that the pre-service classroom teachers generally have an has merit of view.

Table 12. The Chi-square test results of the answers given by the pre-service classroom teachers to Question 12 of the VOSTS-TR survey in terms of their class levels.

Groups	Naive (%)	Has Merit (%)	Realistic (%)
4.Clasroom P.C.T	8,3	52,8	38,9
3.Clasroom P.C.T	5,1	57,0	38,0

$p>.05$.

According to the chi-square test, no significant difference was found among the views of the pre-service classroom teachers in terms of their class levels in the question that was related with the relationship between technological development and our standards of living ($p>.05$) (Table 13). It is observed that the pre-service classroom teachers generally have an has merit of view.

Table 13. The Chi-square test results of the answers given by the pre-service classroom teachers to Question 13 of the VOSTS-TR survey in terms of their class levels.

Groups	Naive (%)	Has Merit (%)	Realistic (%)
4.Clasroom P.C.T	13,9	44,4	40,5
3.Clasroom P.C.T	18,8	57,5	23,5

$p>.05$.

According to the chi-square test, no significant difference was found among the views of the pre-service classroom teachers in terms of their class levels in the question related to whether or not the use of a new technological development depends on its functioning, and if so, the degree to which the use of a new technological development depends its functioning ($p>.05$) (Table 14). It is observed that the fourth-year pre-service classroom teachers mostly have a realistic point of view whereas the third-year pre-service teachers have an has merit of view.

Table 14. The Chi-square test results of the answers given by the pre-service classroom teachers to Question 14 of the VOSTS-TR survey in terms of their class levels.

Groups	Naive (%)	Has Merit (%)	Realistic (%)
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4.Clasroom P.C.T	13,9	33,3	52,8
3.Clasroom P.C.T	14,3	46,8	38,0

$p > .05$.

According to the chi-square test, no significant difference was found among the views of the pre-service classroom teachers in terms of their class levels in the question related to whether or not technology experts can explain a new technology after it has been developed ($p > .05$) (Table 15). It is observed that the pre-service classroom teachers generally have an naive point of view.

Table 15. The Chi-square test results of the answers given by the pre-service classroom teachers to Question 15 of the VOSTS-TR survey in terms of their class levels.

Groups	Naive (%)	Has Merit (%)	Realistic (%)
4.Clasroom P.C.T	51,4	25,7	22,9
3.Clasroom P.C.T	62,5	18,8	18,8

$p > .05$.

According to the chi-square test, no significant difference was found among the views of the pre-service classroom teachers in terms of their class levels in the question related to the implementation of a new technological development and its benefits to society ($p > .05$) (Table 16). It is observed that the pre-service classroom teachers generally have a realistic point of view.

Table 16. The Chi-square test results of the answers given by the pre-service classroom teachers to Question 16 of the VOSTS-TR survey in terms of their class levels.

Groups	Naive (%)	Has Merit (%)	Realistic (%)
4.Clasroom P.C.T	0	38,9	61,1
3.Clasroom P.C.T	3,7	20,7	75,6

$p > .05$.

According to the chi-square test, no significant difference was found among the views of the pre-service classroom teachers in terms of their class levels in the question related to technological developments and controlling these developments ($p > .05$) (Table 17). It is observed that the pre-service classroom teachers generally have an has merit of view.

Table 17. The Chi-square test results of the answers given by the pre-service classroom teachers to Question 17 of the VOSTS-TR survey in terms of their class levels.

Groups	Naive (%)	Has Merit (%)	Realistic (%)
4.Clasroom P.C.T	0	73,0	27,0
3.Clasroom P.C.T	1,2	57,3	41,5

$p > ,05$.

4. Results

It was observed that the pre-service teachers predominantly thought of computers, Internet or electronic devices when they were asked what technology was. It is observed that there are similar results in related studies that have been conducted in the literature (Ryan ve Aikenhead, 1992; Volk and Dugger, 2005; Yalvaç et al, 2007). It was observed that the pre-service teachers had knowledge on technology, but this knowledge was not at the level of realistic view, that is to say, they had incomplete knowledge. It is observed that the pre-service teachers agreed with the realistic idea that scientific researches will increase technological developments, and technological developments will increase the ability to conduct scientific research while they explained the relationship between science and technology. The fact that technology can advance separately from science was not expressed by any pre-service teacher while they explained the relationship between science and technology. According to the results obtained via the view scale on the nature of technology, it was observed that they stated society had effects on technology. It is observed that the pre-service teachers generally have an naive view on the degree to which technology help people make some moral decisions. It is observed that the pre-service teachers generally have an has meriton the fact that the more technology develops in a society, the more that society develops in parallel with this development. It is observed that the pre-service teachers generally have an has meriton the relationship between technological development and development of our standards of living. It is observed that the pre-service teachers embraced an has merit that the more we know, the better we can solve our problems and gain the strength to become self-sufficient. It is observed that pre-service teachers have a realistic view that if they learn how to use technology, society that knows how to use technology will become more knowledgeable; and furthermore, the society will better understand the technology experts, thereby fulfilling their requirements in a better manner.

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Towards Smart Education: Ambient Intelligence in the Mexican Classrooms

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Abstract

The rapid adoption of portable devices, like tablets and smart phones, has allowed students to have access to information directly in the classroom. However, this is not enough. Due to the new trends of interaction with computers and wireless interconnection networks between heterogeneous devices and the growing interest in improving the teaching-learning process, has led to the educational field the application of a discipline known as Ambient Intelligence (AmI) with the purpose of provide intelligence to the ordinary classroom. AmI is a new information paradigm, in which people are immersed in a digital environment that is aware of their presence and context, which also suits their needs. In this research work, we describe a smart classroom, which aims to realize the AmI vision in education. This vision applied in Mexican schools can significantly enhance the educational domain, through personalizing and adapting of the learning environment to enable natural interactions and context aware education in the technologically augmented classroom of the future.

Keywords: Ambient Intelligence; Smart Classroom, Smart Education, Learning Technology.

1. Introduction

The rapid adoption of smart mobile devices and the predominance of laptops used by students, have enabled that school classrooms (especially in advanced degrees) have access to information much faster than previous generations. However, this is not enough.

Some difficulties that face students while studying with computer-supported media are: the resources do not facilitate communication between students, or the exchange of information between them and the professor, the information gathered by students is not always relevant or appropriate to the subject of study presented in class, computers are not able to help with specific exercises made on physical media, such as textbooks, copies and other print materials (Margetis, Zabulis, Koutlemanis, Antona, & Stephanidis, 2012).

With the new trends in natural interaction between the computer and the human, wireless networks between heterogeneous devices and a genuine interest in research to improve learning, has led

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to the application of new technologies in this area to improve the situations described above, as in the case of ambient intelligence (AmI).

The work presented in this paper aims to develop an intelligent classroom, which will use the AmI paradigm to transform the conventional classroom into a context aware environment.

2. Background

For years, the computers miniaturization has allowed their incorporation in our daily lives, a few decades ago it was impossible to think that we would have devices that fit in the palm of a hand with the processing power of a desktop computer, it was not feasible to think in wireless networks of low-power consumption and high-speed, embedded devices that perform thousands of non-invasively functions into our lives. The use of smart mobile devices is so entrenched that there is a new generation of user called digital natives (Bennett, Maton, & Kervin, 2008). Digital natives are used to work with electronic devices and information technologies, most connected to the internet and, in general, for these users are a big part of their daily life. Therefore, new research paradigms as the AmI are growing rapidly (Shadbolt, 2003).

Today, it is difficult to find an area of study that has not been permeated by AmI and do not feel its influence. The systems are being designed so that people do not need prior computer knowledge to be benefited by its use (Augusto & McCullagh, 2007). For example, the graphical interfaces have been augmented with speech recognition, video games have been adapted for use with wireless full-body interaction, wireless communication protocols such as Bluetooth and Zigbee have removed the need for a wired connection.

These devices must be used in conjunction with highly intelligent software to understand the events and the relevant context occurring around the device and from that make rational decisions (Augusto, Nakashima, & Aghajan, 2010), in a digital environment that proactively, but reasoned, supports people in their daily lives (Augusto, 2007).

This set of technologies is aligned to the term "the disappearing computer" (Weiser, 1993):

"The most profound technologies are those that disappear. They weave themselves into the fabric of everyday life until they are indistinguishable from it."

These technological advances bring enormous potential for improving education through more efficient ways, different and innovative (Kinshunk, Sutinen, & Goh, 2003). In addition, academic institutions can use technology to monitor the progress of their students' learning (Cook, Augusto, & Jakkula, 2007).

3. Related work

Next we describe research works that make use of AmI in support of education.

A smart classroom at Northwestern University (Franklin, 1998) use microphones and with the captured information infer the speaker's intentions and thus control the lighting, play videos, flip slides, etc.. The interesting part is that no explicit programming is required to interact with the system; natural actions of users enable appropriate responses in the environment.

The iClass architecture (Ramadan, Hagra, Nawito, Faham, & Eldesouky, 2010) is a classroom with multiple sensors, actuators, processors, and a heterogeneous network. This allows controlling various aspects of the classroom as the air temperature, the opening of shutters, and the intensity of the light in the lamps. All these sensors are hidden from students and teachers so that the user is not aware of the class intelligent infrastructure.

4. Contextual study

Our field work was designed to know the opinions of the actual students of our school, we focus on the services required on a smart classroom on their opinion.

4.1 Methods

We interview 20 randomly-chosen students from different grades from the School of Telematics at the University of Colima.

4.2 Results

Fig. 1 show that 70% of interviewed students unknown what a smart environment is. So we had to explain what is it before continue with the interview.

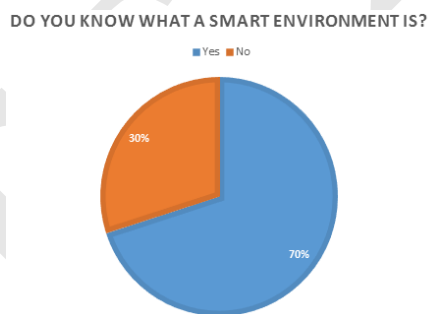


Fig. 1. Answers to question: Do you know what a smart environment is?

Fig. 2 shows that the 20 students interviewed are interested on a smart classroom.

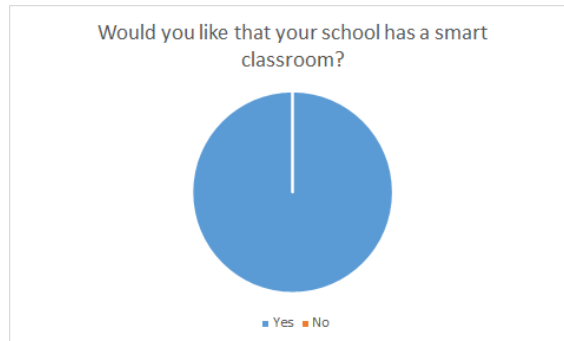


Fig. 2. Answers to question: Would you like that your school has a smart classroom?

Fig. 3 shows the students preference on putting intelligence on the following services of a classroom.

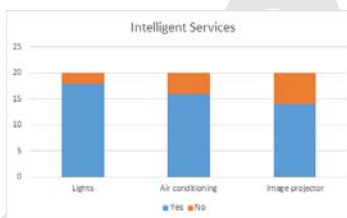


Fig. 3. Answers to question: Desired intelligent services

Finally we ask is they think that a smart classroom will be helpful on their studies, 99% said yes (see Fig. 4).



Fig. 4. Answers to question: Do you think a smart classroom will help you in the study?

5. Envisioned system

In order to achieve these issues, we envision that our system needs to address the following aspects:

Support heterogeneous devices. The system must be able to be used in as many devices as possible because there are a very large number of different devices. The idea is that the scope gets to be as broad as possible.

Interface easy to use. The smart environment must have a very small learning curve and be as easy to use as possible.

6. System design

Based on our envisioned system we engaged in the design and development of a prototype of the project, which is described next.

The project consist on two boards (master and slaves) in order to gather and process all the information in the sensor network at the classroom.

The master board is responsible for interacting with the smart classroom, monitoring the temperature, the amount of indoor light and the teacher's presence to turn on the projector, as well a graphic LCD display for monitoring all the components. This card works with a microcontroller Pic18f4550.

The temperature module works with a DHT22 sensor with a temperature range from $-40\text{ }^{\circ}\text{C}$ to $80\text{ }^{\circ}\text{C}$ with a resolution of 0.1. The lighting module has a LDR sensor with high index of lumens and the proximity module uses an ultrasonic sensor.

All modules communicate with the slave boards via the XBee communication module.

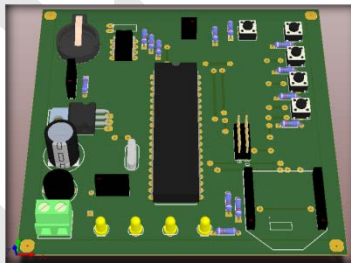


Fig. 5. Master board.

7. Usage scenario

To illustrate the functionality of the system, we present the following scenario of use that describes how the students would interact with the smart classroom:

Sun is shining in all its splendor and it's just a bit too warm to feel comfortable, but as soon as someone walks in the classroom, the fans start spinning and you feel a welcoming breeze. A few minutes later, all that heat leads to storm clouds forming and leaving you in the dark, but suddenly lights go on, automatically, and you start to take notes soon again. Then, your teacher remembers he has a few slides prepared to help you understand that equation you can't master just yet, he approaches the video

projector and connects his laptop. The projector starts doing it's job and lights dim, again, in an automatic way. After this, you can't help but to think "There's no other classroom I'd rather be."

8. Applications

Working on the smart classroom project we realized that creating physical infrastructure was not enough, so we started creating apps to coexist at the intelligent environment.

Augmented reality for secondary education students

We are using mobile augmented reality to allow Mexican secondary education students to access additional educational contents related to their textbooks (see Fig. 6).



Fig. 6. Student with the AR app.

Mexican history through a serious game with physical activation

We are working to create a serious game for children's physical activation. The interaction will be provided through the Kinect.

This game will allow them to learn from the history of Mexico in addition to increasing their physical activity (see Fig. 7).

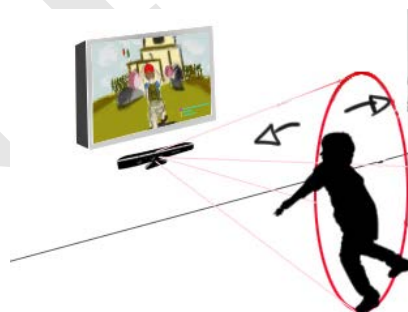


Fig. 8. Serious game.

Natural interactions for learning mathematical concepts

Now we are engaged on developing an app for learning mathematical concepts through the use of natural user interactions. You can find a couple of screenshots of our first prototype.

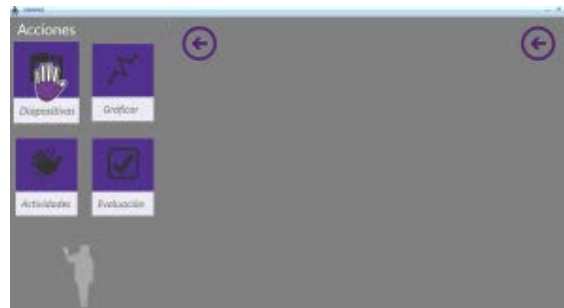


Fig. 8. MathNUI.

9. Conclusions

This work proposes to improve the learning process by the design of a smart classroom with ambient intelligence. The design process was informed on a contextual study with actual student.

As a general conclusion we can say that the use of smart classroom for education is adequate for the students and the learning process.

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Transfer of scientific research into lifelong learning at the University of Žilina

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Abstract

Achieving quality of educational activities within the knowledge transfer from university to business practice is important task for all stakeholders, and especially universities, which mediates the transfer. Educational activity is successful if it fulfils set learning objectives and expectations of interested subjects. The article deals with example of knowledge transfer from the University of Žilina to important company in the Slovak Republic; it describes phases of this activity and through SWOT analysis identifies the main barriers of successful implementation of the project. Following, it contains framework solutions for removing these barriers and highlights the role of participating subjects in improving quality of education and achieving effects that effective knowledge transfer brings.

Keywords: Quality of education, knowledge transfer, lifelong learning.

1. Introduction

The case study presented at the beginning of this paper was prepared as part of the project DIALOGUE. The project aims at bridging the gap between academic research on University Lifelong Learning (ULLL) and the professional practice around adult teaching, learning and guidance within lifelong learning (LLL) provision. By strengthening these links, the project will support the collective production of knowledge and the interactive exchange of information, which reinforces the evolution of LLL and linked benefits for European society. Part of the paper presents case study of educational activity presenting transfer of research results into lifelong learning - "New Trends in Electricity". Within this educational activity, it was a modular structured accredited course that allowed participants to gain new knowledge in the field of generation, transmission and distribution of electricity. The training activity directly followed on solution results of major projects at the Department of Power Electrical Systems, Faculty of Electrical Engineering, University of Žilina (KVES) namely:

- project of Scientific Grant Agency VEGA: Analysis, application and criteria N-1 for Slovak transmission system;
- institutional research project V08-007-00: Research of needed reserve power in the transmission system after disconnecting units of Jaslovské Bohunice nuclear power to meet the criteria N-1.

This research dealt with a very serious problem to remove the effects of loss of one of the electricity generators in nuclear power plant in Jaslovské Bohunice which run the whole energy system in the Slovak

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Republic. Information about significant solution results were presented to potential candidates for their use (including the Central Slovakia Power Engineering, Inc.) based on informal contacts, within the participation of practice in the final state exams, at seminars and conferences.

Given the broad range of issue and possible different specialized targeting of the course, students had to be chosen a modular organizational form. Basic training module was compulsory for all trainees. Other follow-up modules aimed at special areas issue of production, transmission and distribution of electricity were chosen by *participants* of course optionally and freely.

1.1. The current state of the problem

The aim of the educational activity was that by the end of the course and selected modules, graduates obtain the current knowledge in the field of generation, transmission and distribution of electricity, as well as from other areas of electricity that were reached by the research on the University of Žilina. Participants acquired an overview of new trends in the field of control of electric power systems, the use of power electronics for control of electric power systems, new knowledge in the field of construction and rearmament of power stations, measurement and evaluation of quality parameters of electricity. In theory and practice they got familiar with the latest simulation programs used in the power industry and obtained complex overview of managing of quality management. Target group were employees of energy companies. The participants were required to have completed high school graduation. (Altus, Pokorný, Novák, Otčenášová, 2011)

Graduate profile had defined that the graduate of course will acquire theoretical knowledge and practical experience in key areas of electricity: an overview of modernization of electricity production, new trends in research and development of new products with use of direct energy conversion and increasing of transmission line capacity. By completing educational activity, graduates are able to apply rules governing operation of power system in the liberalized electricity market. They are familiar with the process of rationalizing energy consumption, are able to monitor and diagnose electricity facilities, to establish a timetable and activities carried out for prevention, to recognize processes of monitoring and protecting the environment and watch global trends in this field. (Altus, Pokorný, Novák, Otčenášová, 2011)

Baseline of individual modules presents lectures including presentation of new information (research results) and theoretical knowledge, amended by an active group discussion of trainees. Each module is revived by practical exercises in specialized laboratories. There is available a teaching text in printed form clearly describing discussed substance. The choice of methods of lectures ensures that educational process is flexible; acceptable to a wide range of participants and that the curriculum is supported by practical training with use of information-communication technologies. The final exam for each module consisted of a test and an interview. Final evaluation of educational program formed summary evaluation of final examinations of all completed modules. The total extent of the educational activity was set for 185 hours of theoretical teaching and 55 hours of practical training.

Material-technical provision of educational activity was on very good level, because the University of Žilina has own educational buildings equipped with the latest computer technologies and didactic techniques. At the outset of each module the students received a study packet containing all materials necessary for the study. (Altus, Pokorný, Novák, Otčenášová, 2011)

Lifelong Learning Institute evaluated the overall quality of this educational activity and thus the knowledge transfer gained by research activities at the University of Žilina into practice. The learning activity could be considered as successful because it achieved the learning objectives and filled expectations of participated subjects. These objectives were based on:

- analysis of educational needs (or the needs of knowledge transfer acquired by research activities of the university) of the target group, based on the findings status meeting their required competency profile job, carried out by the company Central Slovakia Power Engineering, Inc. (SSE),
- determining the development needs of target group of learners from SSE.

In this case, the knowledge transfer from research into lifelong learning was based on the difference between desired and actual competencies of learners. To detect situation in fulfilling competencies served personnel audit in SSE where the trainees were employed and the basis for determining the purpose of education was to review their work.

1.2. Aim of the work

Concerning a complex knowledge and evaluation of educational activity quality, which is also quality of research results transfer, there were following phases of assessment process:

- assessing the quality of educational action at its beginning;
- assessing the quality of educational action during its implementation, including the effective transmission of science and research results in the subject area;
- assessing the quality outcomes of educational action on its output. (Seppälä, Soirero, Coughan, 2008)

1.3. Methodology of the work

In order to meet the aim of the work, there were used analysis and synthesis. Analytical research was based on results of primary research realized through expert interviews with participants of technology transfers and knowledge transfer from the university into business practice.

2. Results of the research

The quality of educational activities at the beginning was identified from six perspectives:

- Adequacy of formulation objectives of educational action, i.e. assessment whether the objectives of educational activity were subsequently formulated for the analysis specific development and learning needs of learners; assessed the degree of fulfilment objectives of educational activities in the field of well-defined content and structure themes of educational topics action, which had to meet learning objectives. Indicators for this phase of the process were related to assessments upon which they formulated objectives of the educational activity. In this case, it was the employer's training needs analysis (SSE), which held an employer in relation to the need for practical solutions to current problems - possible outages of generator of Nuclear power plants in Jaslovské Bohunice. The present phase of quality assurance of educational activities was important prerequisite for effectiveness of education, as clearly stated expectations and objectives of educational activity has become a major prerequisite for its successful implementation.
- Adequacy of offered content in relation to purpose of education - relevant department at Faculty of Electrical Engineering at the University of Žilina has created an educational project to offer training to this required topic, while alone evaluated whether a given time period, in terms of supply of a wide range of activities offered, can actually carry out educational activity. Teachers themselves could not be at risk of being accused of customers that did not meet promised content and education was not realized in the offered range. The adequacy of offered content was very touching themes of education, because it is difficult to acquire available literature and experience. Therefore, the educational institution has provided references about the conducted educational activities of the focus, provided more detailed outlines of training modules, allowed

SSE insight into the treated material for trainees and provided professional portfolio of lectures of individual training modules.

- c) Adequacy and appropriateness of selected forms of education - Lifelong Learning Institute (the UCV) investigated the suitability and effectiveness of selected forms of education in relation to objectives of the educational activity and individual topics of education. The institute carried out "benchmarking" of proposed forms of course with similar implemented courses, evaluated whether teachers have elaborated timetable for implementation of educational action in terms of time complexity and importance of different topics. From the previous educational activities of a similar nature was evident that conduct educational activities for "practitioners" - participants who are experts on the subject with some degree of knowledge is very difficult.
- d) Adequacy and appropriateness of selection of lecturers - UCV has found that quality of teachers means theoretical knowledge and practical experience and references of lecturers for individual selected topics. Selection was based on set criteria for successfully managing the different topics.
- e) Adequacy and forms of teaching materials - KVES in cooperation with UCV made a comparison whether contents of study materials is in accordance with the structure and objectives of educational action; whether study materials are prepared in accordance with the current level of theory and practice in the field; professionally were assessed the quality and level of their teaching materials, including whether the teaching materials are presented in an appropriate way that will engage participants in learning.
- f) Adequacy and suitability for use of proposed didactic resources - UCV evaluated the suitability of selected didactic resources for the implementation of individual subjects and investigated the rate at which the selected didactic resources represent the desired goals and objectives of education.
- g) Adequacy of schedule completion of the educational activity - UCV and KVES chose the schedule of educational activities very carefully because for learners is assumed (and indeed it was the case) on the one hand time pressure and on the other hand was required by KVES rigorous participation of learners at all educational activity.

Process of educational activity presented second phase of assessment the quality of educational activities. It included knowledge transfer from research to practice. UCV within this activity controlled, whether lecturers presented:

- objectives of educational action of the participants at the beginning of training and educational action expected results (what participants will know after its completion);
- priority sites of topics;
- appropriate expertise;
- possibility of further additions of expertise (books, studies, etc.);
- further knowledge and experience related to the topic of education.

During the training activity, UCV and KVES controlled regular contact with trainees of educational action, ability of trainers to answer questions trainees, whether teachers demonstrated ways of effective use of knowledge presented, whether didactic resources were appropriately used, whether the lecturers combined the use of individual didactic resources by character requirements of topics and whether they used processed teaching materials in their interpretation. This evaluation from UCV and guarantor training for KVES was realized by random classroom visits - several unannounced visits to the educational activity.

In checking output quality of realized educational action, UCV and KVES watched particularly satisfied trainees with fulfilment of set objectives of education event, rate of achieving the desired effects, i.e. rate of impact of relevant educational activity to achieve the desired changes in knowledge, behaviour, values, respectively competence of the subjects of education. In this case, it was about getting feedback by form of communication between learners, their employers (SSE), UCV and KVES, in which assessed immediate

effects of education. To monitoring of subsequent effects of learning, respectively gathering knowledge, for example from managers who manage job trainees in work at the level of changes in their attitudes in this area, changes in behaviour after completing training actions, changes in their performance in the area, occurred only on an informal level. However, evidence of success of educational activity is the fact that educational activity developed into a form of bachelor studies at the request of energy companies. Despite great complexity and lengthy of accreditation procedures, Accreditation Committee in relation to the submission of quality processed accreditation file was friendly for the idea of creating curriculum responsive to the needs of practice.

Effectiveness of funds spent on the educational activity has not been thoroughly studied. Actual costs of educational activities, however, exceeded the amount of price of educational events. Price was an agreement with SSE, which tried to reduce it beside the calculated price.

Case study presents “good practice” in approaches to quality assurance transfer of research results into lifelong learning at the University of Žilina. It presents process approach to measuring quality and effectiveness of learning activities as a knowledge transfer of research into lifelong learning through the establishment of quality requirements for inputs, the quality of their learning and quality, respectively effectiveness of learning outcomes.

Table 1. SWOT analysis on (cooperation between) ULLL research and professional practice, based on the case study (Rostášová, 2012a)

Topic assessed: Educational activities at the University of Žilina based on the interaction between research and practice in lifelong learning.	
Helpful in achieving the objective	Harmful in achieving the objective
Internal factors	
Strengths	Weaknesses
<ul style="list-style-type: none"> - Educational activity was based on the analysis of learning and development needs of the target group of learners. - Undertake an evaluation of quality of educational activities for its entry: adequacy of targets of knowledge transfer into practice, relevance of knowledge transfer into educational activity, appropriateness of education forms, suitable teachers, qualitative teaching materials, adequacy of educational activity schedule. 	<ul style="list-style-type: none"> - Insufficiently monitored subsequent effects of educational activity. - Absence detection of efficiency of funds spent on educational activity. - In some cases the lack of practical experience of teachers – researchers.

Continuation of Table 1

Strengths		Weaknesses	
<ul style="list-style-type: none"> - Undertake an evaluation of quality of realization educational activity: approaching aims of educational activity at the beginning of education, identifying priority sites of topics, bringing appropriate expertise, demonstrating effective ways of using presented knowledge, familiarization with possibilities of further amendments of expertise, providing additional knowledge and experience related to theme of education. - Control of quality of realized educational activity outputs: satisfaction surveys of learners with fulfilment of set objectives of educational action, determining the degree of influence of learning activity to achieve desired changes in knowledge, behaviour, values, respectively competence of learners. - Quality material - technical support of educational activities: suitable teaching facilities, modern computer equipment and didactic technology. 			
External factors			
Opportunities		Threats	
<ul style="list-style-type: none"> - Companies (SSE) interested in knowledge transfer from university research into practice. - High degree of cooperation companies in carrying out quality analysis of educational and developmental needs of potential learners (input) and quality evaluation of immediate effects of education (output). - Existence of recommended standards quality of education and thus transfer of research results into lifelong learning (ESG standards). - Friendliness the Accreditation Board for approval of study program responding to needs of practice. 		<ul style="list-style-type: none"> - Busy time of trainees. - High demands on lecturers from the participants of educational activity. - Existence of competition in the field of education. - Complexity and length of accreditation procedures by the Ministry. - Pressure of companies to reduce prices for educational activities in high quality standards of training activities. 	

3. Discussion

Barriers mentioned in the SWOT analysis can be generalized and used at national level. Further barriers which may occur can be identified following:

- prioritizing education provided by own educational institutions while quality of transfer of the latest research result into practice may not be in satisfying manner;
- absence of integrated procedures/indicators for measuring quality of execution of knowledge transfer from research to practice through lifelong learning. (Rostášová, 2012b)

Reasons of these general barriers:

- insufficiently monitored subsequent effects of the educational activity arise because there is a thorough collection of knowledge (eg, from managers who manage in the workforce trainees work) about the level changes in the attitudes of trainees after completing training in the field, about behavioral changes in the field after completing educational action, about changes in their performance in the field;
- absence detection efficiency of funds spent on educational activities is caused that there is no the detection of adequacy durations of implemented educational activity, determining the amount of money spent in comparison to similar work, the calculation share of costs for training activity in the budget for comparison money spent with the identified effects of education, comparison expended funds to set standards in this area;
- busy time for trainees occurs because alongside education often have to perform the duties;
- high demands on teachers by the participants in educational activities exist because trainees come from experience, and often have their own opinion and specific understanding at presented ways of solving problems from practice; teachers are often "theorists", but with a high degree of scientific knowledge;
- the existence of competition in the field of education - it is a threat that results from a large number of universities and educational institutions in the Slovak Republic, which created a strong competitive environment in which there is a battle for the customer;
- complexity and length of accreditation procedures by the relevant ministry are given the current state of legislation in this area;
- pressure of companies to reduce the price of a learning activity and a requirement for achieving high quality of educational activities is one of the natural braking factor, mainly because in times of crisis, companies aim to reduce costs, and statistics show that very often it is usually just the cost savings in education;
- there is a preference for learning in companies, which the companies provide by their own educational institutions, while the quality of transfer of the latest knowledge of research into practice may not be at a sufficient level – the braking aspect is related again to the economic effects of education in ensuring internal and external educational institution;
- absence of single procedures for measuring the quality of the implementation of knowledge transfer from research to practice through lifelong learning in the Slovak Republic - mentioned braking aspect results from inconsistencies and confusions that exist in the Slovak Republic in the understanding of quality lifelong learning and in underestimating the non-formal education and informal learning. (Rostášová, 2012b)

Solutions to remove barriers can be defined in general terms as follows:

- draw up strategies on a local and national level for quality assurance and efficiency of lifelong learning (including the determination of quality indicators), in which it has been given increased attention to the quality and effectiveness of linking research results to lifelong learning;

- shorten and streamline the accreditation process (quality assessment) and educational programs by legislative amendment ;
- carry out periodic reviews of legislation that deals with quality in lifelong learning by the legislative organs of the state, revised national system of qualifications, establish a specialized unit or workgroup, or advisory body for the quality assurance of lifelong learning in the relevant ministry; in doing so strengthen the cooperation of three ministries - the Ministry of Education, Science, Research and Sport of the Slovak Republic, the Ministry of Economy of the Slovak Republic and the Ministry of Labour, Social Affairs and Family of the Slovak Republic, as all these ministries working together on the employment policy in the Slovak Republic;
- from the national and local levels to support the process of systematic and consistent self-assessment institutions of lifelong learning in the area of quality implementation transfer of research results into practice for lifelong learning;
- carry out at the national level assessment of the quality of lifelong learning organized by centres and institutes of lifelong learning at individual universities independent by external professional institution, to process benchmarking surveys and rankings in terms of the quality of lifelong learning and the transfer of research results into practice;
- create a motivation system for cooperation between researchers and practice, resulting in the achievement of high quality of this link;
- improve the functioning of the existing national network of institutions of lifelong learning and participate in the creation of an international network within which occurs sharing of techniques for 'best practice' in the provision of that quality. (Rostášová, 2012c)

Actors and reason which (could) play a role in carrying out these actions in the Slovak Republic are in Tab. 2.

Table 2. Actors and reasons which (could) play role in carrying out actions in the Slovak Republic (Rostášová, 2012b)

Actors	Reason
Ministry of Education, Science, Research and Sport of the Slovak Republic	<ul style="list-style-type: none"> - shorten and streamline the accreditation process (quality assessment) and educational curricula by legislative amendment; - conduct regular reviews of legislation that deals with quality of lifelong learning, revise national system of qualifications, set up specialized unit, workgroup or advisory body for lifelong learning quality assurance (Jensen, Kralj, McQuillan, Reichert, 2008)
Ministry of Labour, Social Affairs and Family of the Slovak Republic	<ul style="list-style-type: none"> - cooperate with other state legislative authorities in all activities, promoting the quality of the transfer of research results into practice lifelong learning
Ministry of Economy of the Slovak Republic	<ul style="list-style-type: none"> - cooperate with other state legislative authorities in all activities, promoting the quality of the transfer of results; - consider providing financial incentives for companies that are interested in the transfer of research results into practice
Lifelong Learning Providers - Department of Lifelong Learning, continuing and so on	<ul style="list-style-type: none"> - conduct a comprehensive evaluation of effects and quality of educational activity reacting to the need of knowledge transfer research into lifelong learning: assessing quality of educational action on the input, quality assessment of educational action in the process of its implementation, including the effective transfer of science and research results in this area and assessing output quality of educational action on its output;

	<ul style="list-style-type: none"> - create a motivation system for cooperation between scientists and practice with direct effects associated with achievement of quality of links - to be in a position of "switching person"; - initiate and cooperate in national and international network for implementation of quality management in lifelong learning
Lecture of lifelong learning	<ul style="list-style-type: none"> - strive for close connection with practice, acquire practical experience which sometimes absent there
Candidates for lifelong learning, students of some form of lifelong learning	<ul style="list-style-type: none"> - create an active approach to the need of their own lifelong learning and also through acquisition of knowledge related to the results of research activities, educational and scientific-research institutions; - create a personal time management preventing the stress in managing labor, education and private activities
Institutions and initiatives aimed at lifelong learning and quality of education in the EU and the Slovak Republic	<ul style="list-style-type: none"> - support the establishment of initiatives and projects with the issue of quality lifelong learning and support the transfer of research results into practice; - update and improve the database of quality educational programs and quality teachers - specialists
External institution/institutions evaluating the quality of lifelong learning and transfer of research results into practice	<ul style="list-style-type: none"> - carry out at the national level assessment of the quality of lifelong learning organized by centers and institutes of lifelong learning at individual universities by independent external professional institution; - process benchmarking surveys and rankings in terms of the quality of lifelong learning and the transfer of research results into practice
Firms in the position of sponsors of requirements for training employees	<ul style="list-style-type: none"> - cooperate in carrying out the analysis of training needs of their employees; - determine development needs of individual groups of employees in relation to increasing their knowledge and understanding base; - objectively assess the immediate effects of education (mapping level of knowledge and experience in the field), report the results of the educational institution, make suggestions to improve the quality of education to an educational institution; - monitor subsequent effects of education, respectively gather knowledge about changes in attitudes of trainees after completing training in the field, about changes of conduct in the area after completing educational action, about changes in their performance and so on; - share this kind of information and knowledge with training providers
Regional Government	<ul style="list-style-type: none"> - creating, updating, respectively improving of regional information portal, which would include information about the results of research activities, educational and research institutions in the region and throughout the Slovak Republic

4. Conclusion

Case study, the results of SWOT analyses and realized research present "good practice" in approaches to quality assurance transfer of research results into lifelong learning at the University of Žilina. It presents process approach to measuring quality and effectiveness of learning activities as a knowledge transfer of research into lifelong learning through the establishment of quality requirements for inputs, the quality of their learning and quality, respectively effectiveness of learning outcomes.

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Translator as researcher: perspectives on training and life-long professional improvement of translators

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Abstract

This paper provides a teaching/learning framework to be applied specifically for helping translation students develop translation-oriented research competence. The results of the analysis of the in-class and out-of-class activities designed for observing the development of translation-oriented research competence are discussed with a special focus on the ways of providing students with the insights into the essential requirements of life-long professional improvement as translators.

Keywords: translator training, translation-oriented research competence, life-long professional improvement

1. Introduction

Translation competence and the ways of developing it have been a controversial issue among translation scholars and translator trainers. A consensus on the definition of translation competence has not been reached, however there is an agreement that it consists of sub-competences such as linguistic, cultural, textual, subject, research, and transfer competence (Schäffner & Adab, 2000: ix) or such as communicative and textual competence, cultural competence, subject area competence, instrumental and professional competence, psycho-physiological or attitudinal competence, interpersonal competence and strategic competence (Kelly in Way, 2008: 91). The compartmentalization of translation competence illustrates the complexity of translation and hence the need to handle the challenging requirements of this complexity in translator training programs.

Treatment of translation in all its aspects and helping translation students become competent translators can be said to be the general aim of translator training programs. The realization of such an aim is not easy and requires clearly defining translation competence and its sub-competences, the ways of building and developing them and evaluating the products and performance of the students.

Dynamic nature of the translation industry adds further challenges for translator trainers. The working conditions of translators are changing due to social and technological developments and it is believed that “translation competence can no longer be defined in isolation but must be viewed in relation to the requirements

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of a rapidly developing information society” (Anderman & Rogers, 2000: 63). Hence the task of the translator trainers is getting complicated as well as that of the translators and reserving room for possible future challenges has become another requirement in translator training.

Taking departure from this requirement, this paper aims at providing a teaching/learning framework to be applied specifically for helping translation students develop research competence. Second part of the paper is focused on the definition and importance of research competence as a sub-competence of translation competence. In the third part, the analysis of the results of the in-class and out-of-class activities designed for observing the development of research competence is presented. The last part is devoted to the discussion on the results of the activities and suggestions concerning the ways of providing students with the insights into the essential requirements of life-long professional improvement.

2. Research Competence in the Context of Translation and Translator Training

Research competence in the context of translation, i.e. translation-oriented research competence is among the sub-competences of translation competence in general. Translation-oriented research competence is the ability to apply the required research knowledge and skills for translation purposes and enables the translator to act like a “competent researcher” who knows “what to research, where to research and how to research by using textual clues, his/her world knowledge and good judgment” (İnce & Bengi-Öner, 2009: 162).

No sub-competence is enough in isolation and the interaction between the sub-competences is crucial. Still, more stress should be laid on translation-oriented research competence which can be thought of as a complementary competence needed to cope with the extremely diversified requirements of translation in today’s and future’s world of communication. This is the link between the increasing importance of this specific competence and the ever changing social, cultural, economic and technological circumstances that directly and/or indirectly affect/change translational processes and the job of translators whose “mindset is an assemblage of everything that is worth communicating from one lingua-culture to another” (Neubert, 2000: 3).

Accordingly, focusing on this specific sub-competence might be significant in helping translation students become aware of the fact that they are required to be able to continuously adapt themselves to changing translation/communication situations and to carry out diversified processes involved therein. For this reason, it seems to be useful also to provide translation students with a core perspective from the very beginning of the training process: a perspective that the only unchangeable rule in the context of translation (activity and profession) is that nothing is unchangeable and that they will have to adapt themselves to change all throughout their careers as translators.

Specialization is the trend in the contemporary global world where “more and more experts are proud that they know more and more about less and less, their speciality is their expertise” as opposed to translators who are “actually supposed to have specialist knowledge about more and more” (3). In another study (Öner, 2013) on the question of specialization in translator training and the translator’s scope of expertise, I described the identity of the translator as a *changeful* one and argued that translator training programs are basically responsible for helping translation students develop a core specialization in fulfilling the changing requirements of various fields and sub-fields of specialization.

This is precisely the point where the problem of specialization in translator training and the special importance of translation-oriented research competence become related. For, this competence might be indispensable for the aim of training translators competent to cope with the challenges to be posed by “endless jungle of areas and processes that crop up in ever-new ways in the job of the translator” (Neubert, 2000: 3).

3. Building and Developing Translation-Oriented Research Competence: A Preliminary Study

In what follows, the results of the in-class and out-of-class activities designed for observing the development of translation-oriented research competence of the students on the basis of the said relationship and the assumed complementary role of translation-oriented research competence are presented and discussed with a focus on the ways of providing translation students with the insights into the essential requirements of life-long professional improvement.

3.1. Profile of the Students and the Method

The framework proposed in this paper is based on a study piloted in the 2013 Spring Semester in a translation course offered to the second-year students at the Department of Translation and Interpreting at İstanbul Arel University. The study involved 15 students enrolled in the class. The mother tongue of all the participating students was Turkish and English was their first foreign language and they had previously taken courses on translation-oriented text analysis, linguistics, comparative syntax, comparative literature, media studies and anthropology of language.

The students were not unfamiliar with translation-oriented research requirements and techniques since they had been basically covered especially in courses on translation-oriented text analysis. However in the study the students were not assumed to have completed the process of developing the competence in question but they are regarded to be in the process of building it.

In order to find out whether the students have been developing translation-oriented research competence and the awareness thereof, two English source texts (ST) were selected to be translated into Turkish for the study which was planned to last for four weeks during which the class met once a week for 150 minutes each. In the first week, an online help manual (ST1) (Adobe.com) was given to the students and the distinctive features of the text were discussed in class. The students were asked to translate the text from English into Turkish and submit the translation in the following week with a report on the translation process. The translation of the text was indeed available on the internet but this information was not provided to the students and the students were expected to find it by themselves. Same procedure was followed for ST2 (“Grace, space, pace.”), an advertising slogan, in the following weeks. Last week of the study was devoted to the general discussion on the two translation activities.

3.2. Selection of the Source Texts, Briefs and Skopos

According to the categorization by Katharina Reiss, there are four text types: informative type for the communication of content, expressive type for the communication of artistically organized content, operative type for the communication of content with a persuasive character and mixed type (Reiss, 2000: 163-164). Viewed according to this categorization, ST1 is an instructive text of operative type and ST2 is a text of mixed type, being both operative and expressive. The source texts were given to the students with briefs. In the brief for ST1, the students were asked to translate the content of the webpage into Turkish to be published on the official website (in Turkish) of Adobe for the general audience who would like to use the Flash Player Program while in the brief for ST2, the students were asked to translate the Jaguar advertising slogan into Turkish to be used by the Jaguar Company in an advertising campaign in Turkey and the students were asked to determine the skopos of each translation on the basis of their analysis of the source texts and the briefs.

3.3. Evaluation Criteria (EC)

The three criteria determined specifically for the evaluation of the students' translation-oriented research competence are as follows:

EC1: Did the student research unknown vocabulary/terms/phrases by using monolingual dictionaries, parallel texts and other relevant sources in addition to bilingual dictionaries?

EC2: Did the student research known vocabulary/terms/phrases if necessary?

EC3: Did the student research the subject matter of the source text in addition to vocabulary/terms/phrases?

3.4. Evaluating the Results of the Activities

The number of the students who submitted both their translations and reports was 10 for ST1 and 10 for ST2. The students who submitted only the translations were excluded from the analysis. The research process reports were written either in Turkish or English and the Turkish ones were translated into English by the researcher. Table 1 and Table 2 below show the results of the analysis of the translations and research process reports.

Table 1. Results of the analysis of the research process reports for ST1

EC	Number of the students who fulfilled the EC	Number of the students who could not fulfil the EC
EC1	7	3
EC2	5	5
EC3	5	5

Table 2. Results of the analysis of the research process reports for ST2

EC	Number of the students who fulfilled the EC	Number of the students who could not fulfil the EC
EC1	9	1
EC2	5	5
EC3	8	2

The results presented in the tables above demonstrate that EC1 was fulfilled by the majority of the students for the two source texts. The evaluation criterion that ranked second in terms of fulfillment is EC3, followed by EC2 that ranked third.

The fulfillment of EC1 by the majority of the students shows that most of the students developed awareness of the importance of using additional sources and not limiting their vocabulary/term research to dictionaries, especially bilingual ones and put this awareness into practice. The following comment of one of the students who fulfilled EC1 with respect to ST1 is a revealing example of this awareness:

“Informative and operative texts function by means of common terms. As our source text was the ‘Help’ section of Adobe Flash Player, I first conducted research on the internet to find out what Flash Player is and what the function of Flash Player is. Then I came across the Turkish translation of the source text, but there were some parts that I did not find appropriate and I tried to make my translation decisions according to the common usages in the parallel texts on information technology.”

As can be seen in the above comment what shaped the decisions of the student concerning terms was the results to be obtained by means of parallel text research. This comment is also an example of the awareness of the need to research the subject matter of the text (function and use, in this context) which corresponds to EC2.

The following comment of another student who fulfilled EC1 with respect to ST2 is another example of the awareness concerning research on unknown vocabulary and the role of parallel texts:

“I found out that the word ‘space’ had been added to the slogan and the slogan consisted of ‘grace’ and ‘pace’ before. Bearing this in mind, I wanted to take a look at the slogans of other automobile brands and I examined the Turkish advertising slogans of other brands. I saw that the slogans were mostly short and effective. I started my translation in the light of all these information.”

EC2 was fulfilled by half of the students and hence was not fulfilled by another half. This shows that the awareness of the need to research known vocabulary in relation to the context and skopos of the translation was not at a desired level. The comments of two students who failed to fulfill EC2 with respect to ST1 are shown below:

Ex.1 *“Generally, the text was very easy. I didn’t have difficulty in translating the menu parts. We could find words that gave the Turkish meaning literally.”*

Ex.2 *“While translating the text, firstly I looked at the meanings of the words. I generally preferred the meanings related to computer because this is a computer program. I did not research the meanings related to other things.”*

The deficiency in research on known vocabulary seems to be resulted in certain translation errors in the translation of the students whose comments are given above. For instance, the student (in Ex. 1) translated //Corporate Solutions// as //İşletme Çözümleri// (Business Solutions) instead of //Kurumsal Çözümler// which has become the standard equivalent for //Corporate Solutions//. The student (in Ex. 2) translated //Was this helpful?// as //Yardımcı oluyor mu?// (“Is it helping”, when translated literally) without making research on the use of this sentence consisting of ‘known’ words in the information technology texts, especially in the help pages of websites. This example strikingly shows how deficient research affects translation and prevents the student from producing an operative text free of ambiguity. The students who made research on this sentence through parallel texts translated this question as either //Bu yararlı oldu mu?// or //Bu bilgi yararlı oldu mu?//.

The comments of two students who fulfilled EC2 with respect to ST1 display, on the other hand, a developed awareness of the need to research known vocabulary and a higher degree of accuracy concerning the translation of terms and field-specific phrases:

Ex.1 *“At first, I translated ‘Sign in’ as //Oturum aç// without thinking on it. However, when I searched it on Google the result was like this: 21.700.000 entries for ‘Oturum aç’, 138.000.000 entries for ‘Giriş’ and 18.800.000 entries for ‘Giriş yap’.*

Ex.2 *“Before translating ‘latest version of Flash Player’, I researched ‘son sürümü’ and ‘en son sürümü’ because computer programs are changing continuously. I found 190.000 entries for ‘son sürümü’ and 249.000 entries for ‘en son sürümü’ and I used ‘en son’.*

The significant point in the above comments is that both students made their translation decisions on the basis of their research on words or phrases they had already known. What is more, these students mentioned in their reports that they had found the existing Turkish translation but they felt the need to check further what they found or what they already knew in order to make their final decision.

As for EC3, the number of the students who fulfilled the criterion was slightly higher than those who did not. This shows that the awareness of the need to research the subject matter of the source text in addition to vocabulary/terms/phrases was close to the desired level as compared to the case related to EC2. The comment of a student who failed to fulfill EC3 with respect to ST1 is shown below:

“In the text there was a box that included an acronym as OS about which I did not have any information. At the end of my research, I found out that it is ‘operating system’ and I translated it as ‘işletim sistemi (operating system)’. I did not use an acronym because we use ‘işletim sistemi’ instead of ‘IS’ in Turkish frequently.’

In fact the translation error that existed in the translation of this student was a common one that appeared in most of the translations of ST1, i.e. most of the students translated the content of the said box into Turkish. However, one of the students who carried out further research on the ‘real operation’ of the Flash Player program found out that the box in question should not be translated into Turkish and should be left as it is because that part of the software did not support the Turkish language. The comment of the student is as follows:

“At first I translated the words in the box into Turkish. But then I tried to install the program and found that the words in the box remained in English. Then I researched the language options of the program and learnt that that part was not supported in Turkish. So I did not translate it into Turkish.’

This comment and the resulting translation decision is a highly important example of the desired research behavior/perspective hence competence in the context of translation. For, in this example, the student decided to do something more than terminology research through dictionaries and/or parallel texts. It should also be noted that this student was also one of those who found the existing Turkish translation on the internet. Despite this fact, rather than stopping the research process at that point, the student tried to install or ‘operate’ the program in order to be completely sure of the appropriateness of the translation decision in terms of achieving the skopos of the translation: to make it possible for the Turkish-speaking target audience to use the program.

The number of the students who fulfilled EC3 in the translation process pertaining to ST2 was high compared to the number of those who fulfilled the same criterion while translating ST1. The following comments of the

students who fulfilled EC3 with respect to ST2 are revealing examples of the awareness of the need to make research on the subject matter, in this case the product in the advertising slogan:

Ex.1 *“When we looked at the slogan we could easily understand the meaning of each word. But the slogan is not only related to the meaning of the words. It’s related to the history of Jaguar.”*

Ex.2 *“Before translating the slogan, I had to decide the way I should use in the translation process. The slogan consisted of only three words. But these were not only words but the summary of Jaguar’s history, culture and features. Firstly, I started to research Jaguar’s history on the internet.”*

Ex.3 *“Before starting to translate the slogan, I watched documentaries about jaguar (as an animal) and wondered whether there were common features between this animal and Jaguar as a car brand.”*

It is understood from the above comments that the students gave priority to researching the history and features of Jaguar (both as an animal and a car) over looking up the words in the dictionary at the beginning of their research process and that the research they conducted on the individual words in the slogan was influenced by the information they gathered from the sources on the history and features of the product. The following comments of two other students also exemplify this process:

Ex.4 *“Although the slogan was short, it was one of the most difficult texts we translated. It is easier to translate long texts but this one was a slogan consisting of three rhyming words. The use of ‘grace’, ‘space’ and ‘pace’ was not coincidence.”*

Ex.5 *“The words in the source text were selected successfully and used effectively. They attract the attention of the target audience. I had to choose that kind of words in order to create the same effect in Turkish. First I thought that this slogan was related to the brand’s history and I researched the history of Jaguar. But I realized that the slogan was not related to the history of Jaguar. And I changed the way I researched. I found that in some motor vehicle magazines, the advertising slogans of luxury cars such as Jaguar were analyzed. In a magazine I found that the original version of this slogan was ‘Grace, Pace.’ The word ‘space’ was added to the slogan afterwards. I did not have difficulty in understanding the meaning of ‘grace’ and ‘pace’. But ‘space’ was the word that I found most difficult and researched most. It was difficult to translate it because although the meaning of the word was very clear, I could not understand its meaning in the slogan. After a very long research, I found out that the word ‘space’ was used for the comfort of the inside of the Jaguar cars and I translated ‘space’ as ‘konfor’.”*

Ex.6 *“I found out that the word grace reflects British style and luxury with XJ models, the word ‘space’ reflects design and also refers to E-type model which was first produced as 2-seat car and then changed to 4-seat, the word ‘pace’ is related to the powerful engines of Jaguars which were built from past to present. Also, the slogan was first used when the Jaguar won an International Car Race.”*

The above comments of the students who fulfilled EC3 with respect to ST2 illustrate that the awareness of the role subject matter research plays in making translation decisions appropriate for the skopos of the translation was close to the desired level. It was observed that rather than the dictionary meanings of the words, the research

on the product details shaped the decisions of the students who strived to produce a Turkish slogan which is at the same time creative, catchy and faithful to the function of the source slogan.

4. Discussion, Conclusions and Limitations

The results of the present study carried out to find out whether the students have been developing translation-oriented research competence and the awareness thereof suggest that majority of the students have developed the competence in question and that this competence was reflected positively on the translation they produced, i.e. the translation product. The results also suggest that asking students to reflect on and report their translation, research and decision-making processes has the potential to contribute to the development of awareness of research competence and its role in terms of helping students explain/justify their translation decisions confidently.

It should be noted that among the participating students, there were also ones who could not produce a translation that achieved the translation skopos even though they fulfilled the evaluation criteria. In those cases the problem stemmed from deficiencies in other sub-competences of the general translation competence such as transfer and/or linguistic competence. This shows that research competence alone is not sufficient for the production of a translation that meets the requirements of the skopos for which the effective interaction of all the sub-competences is needed.

Nevertheless, since the study focused on research competence, the main aim was to try to observe the behavior of the trainee translators who are expected to become competent researchers in the context of translational activity. This was also the reason underlying the selection of the source texts which primarily required due research at lexical level. Even so, the lengthy reports of most of the students especially on the research process of ST2 which consisted of only three words evidence how extensive a research can get depending on text-specific research requirements.

On the basis of the above considerations, it is suggested that more room should be made for in-class and out-of class activities that aim at identifying, building and improving research competence in translation training courses. This would also require a reflection by the translator trainers on the selection of texts and design of activities that would contribute to the achievement of the said aim.

Special focus on translation-oriented research competence might be indispensable especially for preparing the students for the ever increasing number and type of specialization texts and all related translational processes and for the changing nature of translation-related activities in the face of changing social, cultural and technological circumstances. If translator training is considered as a process of enabling students to acquire a wide perspective as to both the existing and future requirements of the translation profession along with helping them develop translation competence, more focus on activities on translation-oriented research competence might help students gain a perspective that they have to improve their research knowledge and skills not only until graduation from the university but all throughout their professional lives and that they need this specific competence in order to become and remain as translators as researchers.

The present study has certain limitations: It involved a limited number of students (second year students) and text/text types. The model provided in this study would be applied to larger and more diversified groups of trainee translators with a higher number of texts and evaluation criteria. Comparative studies can also be conducted with a focus on the level of this specific competence between trainee translators and professional translators which would provide further insights into the ways of identifying the development of and/or building/improving translation-oriented research competence.

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Turkish influence on education in Southeast Europe

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Abstract

This paper analyses Turkish presence in the education sectors of Southeast European countries. Turkish influence on education in the region spans from bilateral political negotiations concerning local curricula through vast development aid and scholarship programmes to investments of Turkish companies and NGOs. Despite certain suspicions, mainly among nationalist circles, about hidden agendas of Turkish educational institutions in the region, we can conclude that they contribute to the modernisation of Southeast European education through introducing new ideas and approaches, investing urgently needed capital and opening local institutions to international cooperation.

Keywords: education as foreign policy; Turkey; Southeast Europe

1. Introduction

Since the fall of Iron Curtain in 1989, issues related to education and research have played an important role in relations between Turkey and countries of South East Europe (region consisting of Greece, Bulgaria, Macedonia, Albania, Kosovo, Montenegro, Croatia, Bosnia and Herzegovina, Serbia and Romania; some authors include also Slovenia, Moldova and even Hungary; the region is also called the Balkans). They go far beyond negotiating agreements about student exchanges and scientific cooperation. In fact, they transcend the diplomatic level and form a considerable part of economic, cultural and other direct relations between various state agencies, municipalities and schools.

The frequency of such relations on all levels has significantly increased since 2002, when the Justice and Development Party (*Adalet ve Kalkınma Partisi*, AKP), partly as a result of overall increase of Turkish presence and activities in the region and partly due to government's intention to improve the use of soft power in its foreign policy. Consistently with the concept of 'strategic depth' (*stratejik derinlik*) formulated by Ahmet Davutoğlu (2008), most of educational activities of both state and private Turkish institutions focuses on countries and regions with significant Muslim population, whose cultural ties to Turkey are tighter, such as Albania, Kosovo, Bosnia and Herzegovina. In other countries in the Balkans, Turkish educational policy mainly targets regions inhabited by Turkish and other Muslim minorities, such as Northwest of Macedonia or Sanjak in Serbia.

2. Forms of Turkish influence

Turkey influence educational sectors of Balkanic countries through various channels, engaging a multitude of actors from both, state and private spheres. Despite growing importance of private actors in development of relations between Turkey and the Balkans in the field of education (as well as in other fields), the state still

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maintains primary position. It is the government who designs parameters of such relations and who dispose with largest budgets for investments.

And it is also the state who has longest practice in doing so. In 1951, Turkey concluded a cultural agreement with Greece with provisions concerning education of Muslim minority of Western Thrace (Pikal, 2009). It was the first time since the fall of Ottoman Empire when Turkish authorities gained direct influence on curricula and staff of schools in any Balkanic country. Since then until late 1990's, all Turkish diplomatic activities in the region regarding education focused on education of local Turkish minorities. Later, the focus on non-Turkish Muslims was added (Öktem, 2012) and since late 2000's we can see growing interest in addressing non-Muslims in the region as well (Remikovic, 2012).

Actors related to the central government usually tend to interact with respective countries' governments and other central authorities but in case of development aid and other forms of direct support of individual educational institutions, they act locally as well. Their activities span from negotiating bilateral cooperation agreement and attempts to influence local curricula to addressed support to various organizations and communities. On the other hand, private and civil society actors usually run smaller projects (i.e. individual private schools) and operate nearly exclusively on the local levels, with exception of big and highly networked organizations, such as Gülen Movement, that have means to operate throughout whole region or even globally.

○ *Diplomacy*

Diplomatic activities of Turkish concerning educational issues generally help to facilitate further cooperation on other levels. In many occasions some steps of other Turkish organizations (state and private as well) must be pre-negotiated with local governments. Typically, this is the case of student exchange programmes that are based on bilateral agreements (Yanik, 2004).

Sometimes, negotiations on ministerial level may facilitate solution of specific issues. This happened for example in Kosovo where talks between Enver Hoxhaj and Hüseyin Çelik, then Kosovan and Turkish Ministers of Education, initiated revision of Kosovan history textbook to 'soften line on Ottoman rule' (Musliu, 2013). However, there was relatively strong opposition against the revision from among nationalistic intellectuals (Hamidi, 2010).

○ *Financial support and technical assistance*

Turkey is increasingly active in the area of development aid, particularly through the Turkish International Cooperation and Development Agency (*Türk İşbirliği ve Koordinasyon Ajansı Başkanlığı*, TİKA). The state agency was founded in 1992 and its activities originally focused on newly independent Central Asian Turkic republics. After the AKP came to power in 2002, TİKA's action radius was considerably enlarged and newly included, among other regions, the Balkans, particularly Albania, Bosnia and Herzegovina, Kosovo and Macedonia (Murphy & Sazak, 2012).

TİKA's activities related to the education are mainly financial and technical support in reconstruction of schools and building new ones, often in regions with significant Muslim population (Petrović & Reljić, 2011). A successful example of a school built with support of TİKA is Mustafa Kemal Atatürk Primary School (*Mustafa Kemal Atatürk İlköğretim Okulu*) opened last year in Gorna Banjica, Macedonia. With its capacity of 1,400 students it is the largest Turkish school in the Balkans (Remikovic, 2012). Another example might be the reconstruction of kindergarten 'Lastovica' in Nikšić, Montenegro (Pobjeda, 2012). Project realized in neighbourhood with overwhelming Montenegrin and Serb majority demonstrates that TİKA does not help only in

predominantly Muslim localities. Other educational activities of TİKA include training of teachers, distribution of textbook and supporting turcologists abroad (Murphy & Sazak, 2012).

Another state institution that operates in certain segments of education in the region is the Presidency of Religious Affairs (*Diyanet İşleri Başkanlığı*, Diyanet). It is a state authority responsible for maintaining religious life in Turkey and originally operated only within republic's borders. But since 1990's the Diyanet is much more open to the world and seeks to play a more important role abroad (Gözaydın, 2008).

Since then the Diyanet has become an important institution influencing spiritual life in the Balkans, including religious education. First, the Diyanet started to provide scholarships to students from the Balkanic and other post-Communist countries to study theology at Turkish universities. Later, the Presidency cooperated in establishing and running such institutes and universities in the region. It opened one institute and three high schools in Bulgaria, one high school in Romania (Korkut, 2010).

In Albania, the Diyanet controlled practically all formal religious educational institutions, including the Beder University and seven medresas (the medresas are now run by Gülenists, see below). Similar situation is in Macedonia and Kosovo. It seems that religious institutions in the region are strong enough to sustain their own educational institutions only in Bosnia and Herzegovina and South Serbian region of Sanjak (with very strong ties to Bosnia) (Öktem, 2010).

The presence of Diyanet is perceived strongly positively by local religious institutions, governments and even by many Western organizations. It is mainly because the Diyanet-run institutions are seen as counterbalance to unwelcome Wahhabi schools and mosques (Erdem, 2008).

- *Turkish presence in the region: Yunus Emre Institute.*

Apart from diplomatic relations and help in form of material contribution and know-how, there is also a platform for direct addressing the societies of discussed countries. Created in 2007, Yunus Emre Turkish Cultural Centres (*Yunus Emre Türk Kültür Merkezleri*) have spread all over the world including centres in most of Balkanic states. There are even more than one centre in some countries, such as in Kosovo three centres in Prishtina, Prizren and Peja.

The institutes are named after a great Turkish medieval poet Emre Yunus (13th-14th century), following pattern known from many other countries' cultural institutes (such as German Goethe Institutes or Spanish Cervantes Institutes). They promote Turkish culture, language and art through organizing various events, offer Turkish classes and exams for language certificates, including those required by Turkish universities from their foreign applicants (Kaya & Tecmen, 2011). It should be noted that Turkish language classes are on high demand all over the region. For example, a last year commercial research showed Turkish language is the most attractive language in Serbia (Milošević, 2012).

- *Non-governmental actors*

Private companies and NGOs also participate in Turkey-Balkans relations, including relations in the field of education. They mostly invest in the region by opening private schools. They range from pre-school facilities to universities and some of them are among the top ranked in their countries. Some of them are purely commercial, profit-oriented projects, the others combine

Probably the most successful Turkish organization in the field of education is the Gülen movement, Inspired by thought of Turkish Sufi and preacher Fethullah Gülen (*1941). The religious movement does not have a hierarchical structure and its description as one movement or organization can be questioned. It is rather a network of organizations operating worldwide. Their specific theology highlighting focus on individual spiritual work and integration of old and new might be another factor contributing to their success (Michel, 2005).

Schools organized by various foundations and companies related to the Gülen movement usually have secular curricula with emphasis on foreign languages and sciences. In several countries of the region, notably in Albania, some of these schools are among the most elite educational institutions with enormous tuition fees, with students from the richest families. Notable example of a successful institution in Albania is Epoka University, now one of the country's leading organizations providing tertiary education. In Albania, contrary to common practice, Gülen movement also run most of religious high schools, medresas, where they came with relatively innovative approach, combining secular and religious curricula and educational practice (including co-education). (Öktem, 2012).

3. Conclusion

The way Turkey utilizes educational issues in her foreign policy is sophisticated, efficient and in vast majority of cases beneficent for both parties. It combines activities on more levels where every organization has its specific role. Politicians and diplomats occasionally solve educational problems during their meetings and set basic rules for other organizations. TİKA and Diyanet provide their local partners with financial support and technical assistance, each in their specific area. Yunus Emre Cultural Centres (among other activities) prepare and certify applicants to Turkish universities. Turkish companies and NGOs establish and run schools of all levels in the region.

Recipient countries benefit from whole policies by modernizing their curricula (i.e. in History), welcoming large investments from both state and private Turkish investors. These money are spent on improving material conditions of local schools. Finally, the schools operated by Turkish corporations are often members of various international networks and thus are more open to the world and ready to respond to the recent trends in education.

On the other hand, Turkey benefits as well. Development of soft power can help export, especially in retail goods and increases prestige and so improves position of country in international relations. Strong position on high end education market means that future elites of the country will have positive attitudes towards Turkey and probably will work towards even closer relations with Ankara.

We can conclude that Turkey chose a win-win strategy and most of her Balkanic partners decided to participate in such policy to certain extent. Some problems might come in the future, if the Turkish influence increases so that will be perceived as a threat.

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Undergraduate teacher training – space for the formation of habit and teacher professionalism

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Abstract

Everyone's habit as well as the teacher's habits are adapted to the conditions that have created them and they lead to the behaviour and actions that affect the personal and professional existence of people. Habit thus actually restores the social conditions that have created it. This means that the habit that was created during undergraduate education influences the education of children and the youth that is carried out by teachers themselves in the classrooms. It is therefore vital to examine the undergraduate teacher training that is related to the environment that shapes the habit as well as the process that shapes the teacher as a professional with the necessary knowledge and competencies. The paper offers a comparison of views of university students - teacher trainees and the views of professional teachers on the content, teaching methodology and necessity of teaching pedagogical disciplines for the work of the teacher, especially those disciplines that form both – the habit and the teacher's competencies necessary for the performance of his/her profession.

Keywords: habit; undergraduate teacher training; university student; university teacher

1 Undergraduate teacher training in Slovakia

The teacher's personality plays an important role in the education of children and the youth. His/her personality is developed both during the undergraduate training and also through lifelong learning. Undergraduate education consists of pedagogical-psychological training and professional studies of specific subjects. Pedagogical and psychological preparation is an integral and important part as it creates theoretical and practical bases for the teaching profession. As T. Zařková (2007) states the quality teaching is influenced by the action of the teacher, it primarily depends on his/her activities and teaching methodologies in the process of education. Most of the faculties of education and pedagogy offer disciplines, such as pedagogy, psychology, specific methodologies and didactics and teacher training – pedagogical practice (Šimoník, 2005). Šimoník also adds that the current curricula do not provide the students with sufficient amount of lessons related to pedagogy, psychology, methodologies and didactic and pedagogical practices. Undergraduate teacher education in Slovakia has a long history. Economic and social factors have been forming and influencing teacher education throughout the history and even now undergraduate teacher education is affected by social and political requirements. The society is constantly evolving and changing the perception and status of human existence, work and family life. The scientific and technological progress does not always bring positive but also negative aspects that often lead into increasing socio-pathological behaviour of children and teenagers.

The crisis in the family, negative impacts of the media and social networks, lack of positive models of behaviour, whether in the family or in the wider social environment make us find reflect on the impact of the teacher on pupils' behaviour and actions. In order to be able to educate today's children, the teacher needs to act as a positive model of behaviour, to understand their requirements and to develop pupils' and students'

personalities. However, the future teacher (teacher trainees) must be well prepared and trained for these new roles and tasks. Therefore university undergraduate education must meet two major requirements – to provide good theoretical as well as quality professional training. The theoretical part of the training consists of disciplines such as pedagogy, psychology as well as special subject methodologies and general didactics. This is the bridge between the theoretical and professional part of the education. The professional part comprises mostly applied and practical trainings (communicative training, psycho-social training, etc.), project activities related to school and teaching and teacher trainings. As we have already stated, in this stage, state requirements enter, such as:

- Competences framed by conceptual requirements for the development of education within international and national scales, for example the requirement to teach pupils for lifelong learning. It is not connected only to the reform but also to the development of educational science.
- Competences that ensure teacher professionalism and expert professional activities as they are stated in the theory of the teaching profession. (Kosova et al., 2012)

In Slovakia, similarly as in several other countries of the European Union, undergraduate teacher education is implemented by a parallel model, often referred to as an integrated model. The basis of the model is to combine multiple types of teacher training. During their university training, students –future teachers – study many disciplines such as those on the general base, subjects of their specializations (the so called academic subjects) and subjects that involve pedagogical and psychological training/preparation for the teaching profession. E. Lukáč (In Černotová et al., 2006) states that a student in this model is forced to perform multiple duties from different areas, pedagogical and psychological preparation have only a small number of hours and we gradually give way to the number of hours devoted to real output of the students in practice. Those negatives can be, however, eliminated thanks to the parallel model. Positive features of this model lie mainly in the integration of pedagogical and psychological knowledge and academic subject knowledge.

The second model used in undergraduate teacher education is the subsequent model also referred to as the consecutive model. It requires having completed academic subject education and subsequently pedagogical-psychological training connected to practical training. The subsequent model allows more intensive work with the candidates who expect to gain teaching skills; their education is not divided between pedagogical-psychological education and academic subject education. The consecutive model can be divided into two basic sub-groups. The first one consists of a one-phase consecutive model, which enables the student (after completing his/her professional, in other words academic subject education) to attain pedagogical qualification and immediately after graduation he or she could be employed as a teacher. This model is applied in Slovakia within the process of additional teacher training and the graduates of non-academic subject education attain pedagogical (teaching) qualification. The study is legislated by the Ministry of Education and unlike university undergraduate education here the number of lessons as well as the curriculum is strictly defined. Although courses at pedagogical faculties have similar store of teaching disciplines, they differ mainly in the hours allocated to each subject and teaching practice. Turek (2001) states in his analysis that students at the Faculty of Pedagogy of University of Trnava (Slovakia) attain teaching skills within 874 hours, at the Faculty of Arts of University of Prešov (Slovakia) within 429 hours and at the Faculty of Natural Science of Comenius University in Bratislava (Slovakia) within only 300 hours of study. Although the data were collected twelve years ago, we are afraid that the current situation has not improved. In 2014, Slovak universities are going through a complex accreditation process and here we can see the space for uniting the curricula, scope/extend and quality of undergraduate teacher education. The second sub-group consists of a two-phase subsequent model that comprises first theoretical training – that is usually ended by an exam and followed by the second phase, which is practical training. The practical training part takes place directly at school, where students improve on methodology of academic subjects and develop competencies necessary for teaching. It is not easy to determine which of the two models is more effective. Positive and negative aspects of each of the model should be modified and adapted mostly to the educational system, educational conditions, economy of the society and mentality and culture of the nation. However, curricula unification seems to be the most urgent requirement in order to make undergraduate

teacher education quality and effective so that it prepares professionals with advanced competencies and positive personal characteristics. In Slovak undergraduate teacher education, a major problem appears to be the differentiation into the bachelor's and master's degrees. Although education in the European Union is considered to be national particularity and does not subject to unification, teacher training in Slovakia (under the Bologna Process) has been divided into inconsistent or only formal degrees (unlike some other countries) and does not implement teacher training based on subsequent phases that create teacher professionalism. Bachelor's degree consists mostly of theoretical preparation and master's degree methodology and teaching practice, the gradual teacher development is interrupted:

- by isolating theoretical training in academic subjects from academic subject methodologies,
- by limiting types of practical trainings and by their shortening (mostly from four years into three semesters), i. e. lack of time to develop teaching skills and competencies (kosová et al., 2012).

The Legislative Framework Act. 317/2009 on the teaching staff and professional staff outlining the scope of teacher education in § 7 Qualifications in Paragraph 2 states that the required level of teacher education is at least university master's degree. That means that the graduate of Bachelor's study programme cannot be employed as a qualified teacher and job positions that require bachelor degree in the labour market actually do not exist (such as assistant teacher, or teaching staff for extracurricular activities, Civil Servants, school libraries staff, etc.). To continue and attain Master's degree appears to be equally problematic – the graduate usually ends with specialising on two academic subjects, therefore he or she cannot continue in any other study programme just the same which he or she ended in his bachelor study.

How much effective, therefore, is the principle of the Bologna agreement on credits in undergraduate teacher education in Slovakia? The quality could be improved if we returned to continuous master study programme in which good professional as well as pedagogical-psychological training and contact with school practice was offered. Indeed, the mere historical experience, the current school system and legislation confirm the justness of continuous master education as the quality teachers and quality education in our schools is visible.

2 Undergraduate teacher training as a space for forming the habit

Habit of everyone hence the teacher is adapted to the conditions that have created it, and it leads to the behaviour and actions that affect personal and professional existence of man. Habit thus actually restores the social conditions that have created him. This means that the habit created during undergraduate education influences the education of children and teenagers that is carried out by teachers. It is therefore necessary to deal with undergraduate teacher training and see it as environment that shapes the habit and the process that shapes the teacher as a professional with the required knowledge and advanced competencies. Academic environment of the university on the one hand consists of buildings, libraries, lecture halls and material-technical equipment and on the other hand, interaction of teachers and students form it as well. Personalities entering this process create a climate which affects the emotional experience, the development of critical thinking and creativity, knowledge

structure and competencies of those who are involved.

The university teacher is therefore one of the personalities that greatly affects university students' personalities. There are several definitions on who the teacher is. The one, frequently common is that the teacher is one of the fundamental factors of the educational process, professionally qualified teaching staff, jointly responsible for the preparation, management, organization and results of this process (Prucha, Walterová, Mareš, 2001). An international team of experts OECD characterize the teacher as a person whose professional activities involve mediating knowledge, attitudes and skills that are specified in the formal curriculum programmes for pupils and students studying in educational institutions. Any definition of the teacher agrees that the teacher is a qualified professional, whose role is to educate their pupils or students in order to develop their personalities.

However, we do not find many definitions of university teacher's personality. J. Vašutová (1999) states that the term university teacher involves all the persons related to institutions or in the programmes of university education that involve teaching, professional activities, science and research.

The most significant Slovak professor connected to the area of university pedagogy, R. Štepanovič, states in his works that the university teacher is a basic educational phenomenon whose qualification, activities and social and scientific responsibilities enable him to fulfil his/her duty when carrying out the educational process at universities.

Even in the legal documents of the Slovak Republic we can find characteristics of university teachers' personalities. University teachers are defined in The Higher Education Act no. 131/2002 Coll. as follows: § 75 (2) university teachers except for lecturers are actively involved in research, development, curative and preventive or artistic activities aimed at obtaining new knowledge, development of products or works of art or artistic performances. Furthermore, the paragraph mentions the possibility of university teachers at vocational colleges to replace active research and development activities by watching the current state of science, research, technology and art. The general finding somehow forgets to say that the main and most important activity of university teachers is to educate and train their students. The Act up classifies activities related to the educational process only when naming different positions (professor, associate professor, assistant professor, assistant).

In our Czech neighbours, the Higher Education Act no. 111/1998 Coll. states instead of the term "university teachers" the term "academics" In § 70 academics are characterized as follows:

- Academic staff is formed by employers of the university, who perform educational as well as scientific, research, developmental, artistic or other creative activities.
- Academics are professors, associate professors, assistant professors, assistants, lecturers and scientists, researchers and developers involved in teaching.
- At universities academics serve as teachers.

It is worth mentioning that already in the very first paragraph and the first place pedagogical activities and all other activities, such as scientific research and art are stated (of course not less important for the work of a university teacher).

University teachers accept several roles. J. Vašutová (2002) based on the analysis of mostly American literature offers several teaching roles and categorizes them into several groups:

- Roles of the provider of information and experience – it is a typical and irreplaceable role of the university teacher, through which he or she implements the educational process. The teacher as an expert carries the knowledge of his/her field of science and the knowledge is transmitted onto the student generally verbally or in the form of textbooks. In addition, the teacher mediates knowledge and experience in such disciplines that require practical skills training.
- Advisory and participatory roles – those can be identified in the form of academic advisor, consultant, tutor, facilitator, supervisor and mentor. The common denominator of these roles is to help students to support their learning, individual interests and learning needs. The teacher acts as a consultant, helpful in solving learning problems, leading students in self-study and individual tasks.
- Creative and evolving roles – in which the university teacher acts as a creator of curricular and educational projects, creator of learning materials, study guides and creator of concepts of experiential learning (internships and traineeships). Through the creation of textbooks and university textbooks the

teacher presents his/her ability to write in a professional way. In the selected study programmes, where it is necessary to implement a practice (training) the teacher also accepts the role organizer, from arranging conditions of the training to economic and financial issues.

- Roles of evaluation - can be divided into three positions: the university teacher as a student evaluator, teaching curriculum evaluator and self-assessor. These roles are considered to be extremely demanding and responsible as the teacher has to assess cognitive performance of students and their products/output. They require the teacher to have knowledge of methods and forms of evaluation of learning outcomes and their adequate implementation in the educational process. An essential role is also the one of a self-assessor, which allows the teacher to assess his/her pedagogical activities.
- Managerial roles - in which the teacher acts as an administrator. This role is often underestimated and negatively evaluated by teachers themselves. It involves activities associated with creating records of student assessment in the electronic information systems and archiving students' products.
- Modelling roles- they are of special importance in the higher education. Here, the university teacher acts as a model of teaching profession where he or she especially through his/her teaching depicts the future teaching profession of the studied programme, discusses the problems of the future profession, but also acts as a model of a moral person with an adequate value orientation, life philosophy and wisdom.

All these roles overlap each other and the activities they convey should always be continuously improved. For forming teacher habit, the modelling role is particularly important. The teacher through his/her personality may significantly influence the personality of the student. The role of an information provider is also one of the key roles in affecting the student's personality. Monitoring and evaluation is of no less importance. As E. Smetanová (2012, p. 97) says: " ...the process of monitoring and checking relates also to self-evaluation (the teacher himself/herself may evaluate his/her own performance; similarly, the student may evaluate his/her own results and/or performance, too). We can also evaluate how a lesson was run (the quantity of what was learned; the atmosphere in the classroom in general; personal feelings of the teacher and students, emotional experiences, etc.). Checking and monitoring activities usually attempt to measure individual's success as well as success of the whole team and the educational institution."

Academic environment creates adequate space for forming habits. Educational work of teachers is reflected in the behaviour and actions of their students and teacher trainees can often subconsciously take also ways and methods that are used by their teachers. It is therefore necessary to develop the personality of a university teacher in a complex way - educational and psychological preparedness, professional and scientific training and moral profile.

According to J. Danek (2007) students are part of the school in terms of experiencing the situations that take place in it which significantly influence shaping of the student's value orientation, life goals, behaviour, and thus the formation of his character, necessary features and qualities of his/her personality. However, this process is not feasible in such school environment where the desired properties and values absent. It means that the university teacher must bear those qualities that we want university students to have developed. The teacher influences his/her students not only in the classroom but also outside it, therefore it is essential that every teacher understands the importance of his/her educational impact on students who – after their graduation - will be responsible for the future of our society.

The object of educational activities of the university teacher is his/her student. Students have different personal features, intellect and acquired knowledge as well as their motives to study the chosen field of science, their emotional experience and interests. We consider university students adults. How do we understand the

concept of adulthood of a university student? In older literature we meet with the characteristics of adulthood in relation to physical, psychological and sociological aspects (Štepanovič, R., 1987). Human biology says about physical development during adolescence, between the age of 16 and 21 of an individual. Knowledge of psychology, however, shows that the period of psychological maturity is not equal to the period of physical adulthood. Mental development is not completed together with the physical one but in the higher education the student's personality matures and only in the first grades the student have basic features of psychological adulthood, such as stabilisation in his/her thinking and action, independence, ability to plan activities and life, sense of responsibility, etc. A young person - a university student – strengthens his/her self-esteem, begins to orientate in life and world autonomously although those activities are often accompany with errors that come with the influence of emotions and lack of life experience. This is the time when features and qualities are being developed, religious and political orientation is being created and the perception and status of values are being changed. We can say that students enter university mostly physically mature but they achieve sociological and psychological maturity during university studies. Here the space for educational treatment of the university teacher and academic environment is open. Academic environment is not always the same, it depends on many factors, such as the size of the study group, age of students, form of study but also the curriculum or teaching methods used. Given these facts, we should remember that university teaching has its various specifics which must be respected in their implementation. One of the basic specifics of teaching activities is that the object and its environment is constantly changing and evolving. The role of the university teacher is to perceive the dynamics and changes and respond accordingly using his/her flexibility in teaching. This reality is confirmed by B. Kosová (2006) who states that the world education moves away from understanding teaching as a technological process that can be accurately planned and implemented throughout the years, but it sees it as a complex, variable and creative process of personal teacher-student meetings and the teacher is perceived as an expert during the meetings who facilitates the learning process and an expert to solve school educational situations. To become an expert, the teacher must be mature and mentally healthy.

Education is usually carried out in the process of teaching and learning. J. Pelikán (1995) describes education as purposeful and deliberate creation and influencing of the conditions which enable optimal development of each individual in accordance with individual dispositions and stimulating his/her own effort to become an authentic, internally integrated and socialized personality. Based on this definition university should create such academic environment that would develop the intellect on the one hand and on the other side of the student's personality. The culture of relations, communication and aesthetics of academic environment to a large extent affect the student's nature and his/her habits.

3 Undergraduate teacher training as a process for professional education

B. Kosová (2012) states that the professionalization of the teaching profession in the 20th century has brought about a shift from the orientation of the minimum competence of teachers, i.e. the "transfer" of knowledge to the orientation of the model of wide open teacher professionalism. As we have already mentioned above, the world pedagogy understands teaching as a complex, varied and creative process of personal teacher-students meetings through the curriculum. It means that expert teachers' knowledge is not knowledge of the science, arts, sports, technology etc. The teacher has to be predominantly an expert in facilitating learning and solving any educational situations. This approach implies the following:

- *expert diagnostic of subjects and situations,*
- *decision-making processes and interventions with knowledge of causality for:*

- psycho-didactic transformation of the curriculum and methods of acquisition that facilitate and enhance learning and
- solving educational situations in which the teacher must act as an autonomous subject, (assisting support),
- *interpersonal relationships and strategies to:*
 - help individual development of a certain student,
 - manage a group of students, create appropriate psycho-social environment,
- *professional reflection and self-reflection of the teacher's own way of teaching*

(Vašutová, 2004)

If we are experiencing changes in understanding of the status and roles of the teacher in the educational process, it is necessary to change training and education of teachers. Undergraduate education should be modified and adapted to the demands that are placed on teachers in terms of new understanding of their profession. Undergraduate education in the Slovak Republic is carried out at universities. It represents the first stage in the process of lifelong education and professional development of every teacher. This intense preparation for teaching practice leads to the achievement of theoretical, professional and scientific knowledge of study disciplines and to the acquisition of teaching competencies which beginning teachers gradually improve during their teaching practice. Pedagogical disciplines play important and irreplaceable roles in the teacher trainees' education as they provide theoretical and practical basis for the performance of the teaching profession. As the performance requirements are changing along with the development of the society, it is essential to think over the changes – they should be reflected in curricula of pedagogical disciplines.

In 2004, the Department of Pedagogy, Faculty of Arts at University of SS. Cyril and Methodius in Trnava (Slovakia), carried out a survey of opinions of teacher trainees and of teachers of educational practice. The survey was conducted through a questionnaire that was completed by 118 teacher trainees and 78 teachers of primary and secondary schools. The questionnaire consisted of five parts:

- The first part contained the input data on the purpose of the survey, instructions for filling in the questionnaire and input identifying information about the respondent (gender, age, type of completed university education, length of teaching practice, in case of teacher trainees age, gender, year of study and possibly if they have any teaching practice during their university studies).
- In the second part, the respondents expressed their opinions on the content of pedagogical discipline taught within the curriculum, using an assessment scale (from “excellent”, “very good”, “satisfactory”, “unsatisfactory” to “I cannot judge”).
- In the third part of the questionnaire, the respondents recorded their views on the necessity of the pedagogical discipline in relation to the practical teaching performance. They also used an assessment scale (from “very needed”, “necessary”, “less necessary”, “unnecessary” to “I cannot judge”).
- The fourth part of the questionnaire was devoted to questions related to the methodology of teaching in various pedagogical disciplines. The respondents were offered to express their opinions an assessment scale as in the previous parts and the same list of disciplines representing the curriculum of the teacher training study programme. The fourth part was only part of a questionnaire that was filled out by the respondents in the category of students.
- In the final part, the respondents were allowed to express their free ideas, views or comments.

We divided the questionnaire in order to gain unbiased information. We gained an image of evaluation of individual pedagogical disciplines created by students but also teachers. The respondents expressed their views on 19 basic subjects representing various pedagogical disciplines.

In 2013, due to the inevitable need to reform undergraduate teacher education, we repeated the survey. The survey involved 149 students of bachelor and master degree studies in the study programme Teaching academic subjects and 89 teachers from three grammar schools and two primary schools. The following table shows the comparison of views of the both surveys. The results are differentiated into three selected areas in two categories - students and teachers. We chose five disciplines that gained the highest frequency of responses "excellent" (content and methods of the pedagogical discipline) and "much needed" (the need for the discipline for practical performance).

Table No. 1 – Order of disciplines related to the curriculum – category: teachers

2004	2013
1 - practical teacher training 100%	100% practical teacher training - 1
2 - general didactics 92%	96% special pedagogy (pedagogy of the handicapped) - 2
3 - teaching techniques and methods 76%	80% pedagogical communication - 3
4 - observing 74%	78% teaching techniques and methods - 4
5 - alternative schools and their curricula 73%	72% strategies and methods of developing child's personality - 5

Table No. 1 offers a comparison of the order of preferred disciplines in terms of the curriculum of a discipline from the perspective of teachers of educational practice. It seems that in the past and also in the present teachers consider the most important discipline practical teacher training that enables teacher trainees to develop their teaching competencies. Other positions of preferred disciplines: compared to 2004 when the dominated disciplines were focused on didactic and methodological work of teachers, in 2013 most prominent disciplines were those that help teachers work with students with problem behaviour (aggression, bullying, truancy, drug addiction, etc.) and with the so called integrated students with various handicaps (specific learning disabilities, attention deficit disorder and hyperactivity, etc.). Family crisis and crisis of the society that prefers consuming and materialistic lifestyle is thus reflected in the educational process at school.

Table No. 2- Order of disciplines related to the curriculum – category: students

2004	2013
1 - practical teacher training 30%	46% practical teacher training - 1
2 - observing 26%	32% strategies and methods of developing child's personality - 2
3 - special pedagogy (pedagogy of the handicapped) 25%	29% pedagogical communication - 3
4 - strategies and methods of developing child's personality 24%	21% special pedagogy (pedagogy of the handicapped)- 4
5 - principles of pedagogy 19%	18% general didactics - 5

Similar findings are also found in the student category (Table 2), where the first place is occupied by practical teacher training. This demonstrates the necessity of expanding the number of hours of teaching training in individual grades of study at bachelor and master level of study. We also find an increased interest in disciplines

that help teachers manage symptoms of problem student behaviours and develop the child's personality from the point of view of cognitive site (cognitive structures of the personality) but also the emotional, communication and socialization site.

Table No. 3 – Order of disciplines – importance of the discipline for practical performance (teaching) – category: teachers

2004	2013
1 - practical teacher training 100%	96% practical teacher training - 1
2 - general didactics 92%	89% special pedagogy (pedagogy of the handicapped) - 2
3 -teaching techniques and methods 81%	79% teaching techniques and methods - 3
4 - observing 74%	71% strategies and methods of developing child's personality - 4
5 - alternative schools and their curricula 73%	70% general didactics - 5

Table No. 4 – Order of disciplines – importance of the discipline for practical performance (teaching) – category: students

2004	2013
1 - practical teacher training 53%	64% practical teacher training - 1
2 - observing 42%	53% special pedagogy (pedagogy of the handicapped) - 2
3 - special pedagogy (pedagogy of the handicapped) 38%	40% strategies and methods of developing child's personality - 3
4 - strategies and methods of developing child's personality 37%	38% pedagogical communication - 4
5 - principles of pedagogy 33%	32% general didactics - 5

Tables no. 3 and 4 present a graphical representation of correlation in terms of preferred disciplines that are necessary for teaching – they are differentiated in two categories: teachers and students. It is obvious that dominance is kept by practical teacher training, special pedagogy, general didactics, teaching methods and strategies and methods of developing the child's personality. We thus understand that teachers are interested in not only mechanical transfer of new knowledge to their pupils but also in the complex and comprehensive development of their personalities and appropriate coping with educational problems in the educational process, although the social and financial evaluation of their work in the Slovak Republic is not sufficient.

Table No. 5 – Order of disciplines – methodology of teaching – category: students

2004	2013
1 - practical teacher training 31%	42% strategies and methods of developing child's personality - 1
2 - special pedagogy (pedagogy of the handicapped) 21%	36% practical teacher training - 2
3 - strategies and methods of developing child's personality 19%	22% special pedagogy (pedagogy of the handicapped) - 3
4 - principles of pedagogy 18%	20% principles of pedagogy - 4
5 - general didactics 11%	18% pedagogical communication - 5

Table No. 5 compares the evaluation of students of individual disciplines in terms of methodology of teaching the discipline in undergraduate teacher education. We were interested in the last area mainly in order to verify whether passing the course of university pedagogy has an impact on improving the educational process. Since the disciplines that received the highest score in preference, were taught by the teachers who have completed university pedagogy course, we can assume that passing the course contributes to the development of university teacher's personality, his/her pedagogical and psychological preparation and thus to improve the quality of undergraduate education itself.

Later on we analysed relationships between views and age, sex or length of teaching of respondents. In our research we have found no significant differences. In our survey we did not find any significant differences. This could have been influenced by the small size of the sample of respondents. If we wanted to explore further these relationships, we would need to choose a different group of respondents with deliberate choice by each category (age, sex, length of teaching experience) in order to obtain the most unbiased results. In conclusion we can say that all respondents consistently consider the most important pedagogical disciplines such as practical teacher training, general didactics and methodology of the academic subjects, special pedagogy and general pedagogy. General didactics and methodology of academic subjects are seen as sources of necessary knowledge about the objectives, content and methods of teaching. The most positive perception is practical teacher training during which they can practically apply their knowledge and acquire basic teaching competencies. General pedagogy in our case was represented by a subject Principles of Pedagogy that offers a holistic view of general pedagogy, its basic characteristics and relationships between them. The respondents confirm the necessity of theoretical knowledge - the basis on which they can further develop their studies, but also apply during real teaching. By choosing the theory of education (Methods and Strategies of the Child's Development), the respondents show their interest in the development of their students – not only knowledge but also their complex development. They are aware of the necessity of positive influence of the teacher to their students – this is the way the whole educational process could be more effective and the results better. Our most interesting finding was the inclusion of Special Pedagogy among the five disciplines most needed for teaching. We believe that the increasing importance of this discipline is also done by socio-economic conditions of our society. Parents are required hard work, which causes stress, lack of time and space to raise their children. Children thus could be emotionally disturbed, which is accompanied by behavioural problems and in our primary and secondary school classes increase the number of the so called “troubled children”. Another inspiring factor to increase interest in Special Pedagogy is the integration of disabled children into regular classes.

Based on our findings, we have strengthen extend of the study disciplines for teacher trainees in their study plan. As they were represented only as lectures, we have created seminars and workshops to them in order to train model situations in the educational process and strengthen extend of practical teacher training. Opinions of students and teachers are going to be constantly monitored so as the undergraduate teacher education will be more and more professionalised and of better quality.

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Understanding stress in international students of higher education in a Mexican private university

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Abstract

This study presents the background of the theoretical models of culture shock and adaptation in international students in higher education. The Stress and Stressors that might be experienced by these students is measured by the Perceived Stress Scale 10-Item version and Focus Groups and Interviews to Faculty and Staff Members of a Mexican Private University. Guidelines and procedures to Counselors are shared as well as the results and data obtained of this Mixed-Method Approach Study.

Keywords: Stress; International Students; Higher Education; Mexican University; Mixed-Method Study;

1. Introduction

Now days, more private universities are trying to achieve a significant quality in their educational processes. One way of doing this is developing international exchange programs with other universities. The private university chosen for this study has an international program department in charge of promoting this exchange programs with foreign universities.

Double degrees in some careers as well as Mexican students have the experience of studying one or two semesters in a prestigious university abroad, has become a very attractive opportunity.

As a result of these programs, this university has received foreign students from the US, Canada, France, Germany, China, Korea, Denmark, Australia, Japan and other countries. According to the data recovered from the International Department of the private Mexican university in 2007 they received 233 students, in 2008; 289 students, in 2009 265 students, and in 2010, 187 in the first semester.

Therefore, the current situation has demanded a need to understand requirements and problems these students might deal in a daily bases. Furthermore, Faculty and Staff members are required to train and adapt their teaching techniques and their interpersonal communication skills, in and out of the classrooms, in order to support and assist their needs, such as any level of stress they might live with.

Nevertheless, the need to have studies and researches in this matter is essential in order to give a service of outstanding quality. This research pretends to give significant information in the study of Stress and Stressors foreign students might experience studying in a Mexican private university.

2. Literature review

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2.1. Background

Systematic research on overseas students only appeared after the 1950's, when there was a flood of research on their social and psychological problems according to Ward, Bochner, and Furnham cited by Shuo, Jindal-Snape, Topping & Todman (2008).

Considering the limits established in this research the theory that best subscribes the areas considered are the Social skills and culture learning, having its epistemological origins in the social psychology originated by Argyle & Kendon in 1967 (Shuo, et al., 2008). This theory has its conceptual formulation in the lacking of social skills that may cause cross-cultural problems. "The social skills and culture learning perspective began to lay the foundation for the development of the culture learning model" (Shuo, et al., 2008, p.65).

The study of the term culture shock has been acquired from the social psychology as well as from education. On the other hand, the term Culture learning and stress and coping models have become well established as the social identification theories with a high level of prominence, according to Furnham and Bochner cited by Shuo, et al. (2008).

"These three contemporary theories are more comprehensive, considering the different components of response – affect, behavior and cognition (ABC) – when people are exposed to a new culture.... The notion of "culture shock" has been transformed into contact-induced stress accompanied by skills deficits that can be managed and ameliorated, and terms such as adaptation and acculturation have been increasingly used instead" (Shuo, et al., 2008, p. 65). Furnham and Bochner cited by Shuo, et al. "strongly advocated the social skills/cultural learning models, for its theoretical robustness and because it also led to training methods. This approach developed into contemporary culture learning theory" (2008, p. 65).

The term shock is perceived as a stimulus acquire from the reaction caused by the interaction of the new social environment, where new skills are required in order to be able to adapt. This process of adaptation can be influenced by various variables such as a general knowledge of the host culture; the time period in which the student will stayed in these new environment; as well as the level of proficiencies in his o her language communications skills.

Another aspect that differentiates the speed of adaptation is the abilities the student has to connect with other people. This is the number and type of new friends he or she is able to acquire in the host culture, the previous experience the student has abroad as well as the cultural identity will make significance in the adaptation processes.

The concept of shock approaches from stressful life changes such as the "cross-cultural encounters need to be resilient, adapt, and develop coping strategies and tactics" (Shuo, et al., 2008, p.65). The social identification theories focus on the cognitive components of the adaptation process....Two major conceptual approaches are used in social identification. The first is acculturation and the second is social identity theory according to Phinney cited by Shuo, et al. (2008, p.67).

According to Shuo, et al. (2008), there are three models of acculturation: The first one called uni-dimensional where the process of assimilation takes place and the person identifies and copes with the host culture become a new member of it. The bi-dimensional is a leveled model of acculturation and identity. That is, they developed a bicultural identity. And the third called categorical. This model has four acculturation dispositions or strategies of how the person conceptualizes this home and host identities. These are: Integration- The individual perceives himself with a high level of identifications in regards with the host and his own culture, Separation- In this case, the person has a high level of home culture but a low in the host culture identification, Assimilation- On the

contrary, the person has a low level in regards to his own home culture identification but a high in the host culture & Marginalization- In this case, the person perceives himself low in both, his own and the host culture identification.

The concept of Identity is affected by a wide range of factors, such as individual characteristics as age, gender and education level. As a group characteristic we have the permanence of cross-cultural relocation, the degree of motivation for migration, etc. and the broad social context such as the cultural pluralism, the level of prejudice and the degree of discrimination they might feel (Shuo, et al., 2008).

2.2. *Stress in Higher Education*

For college Students living and studying in a foreign country may demand an adjustment in a sociocultural, environmental and physiological way. It is during this process that a psychological stress could be present, such as anxiety, a sense of loss, loneliness, helplessness, and depression (Chen, 1999).

Stress occurs when these individuals perceive harm, threat or challenge exceeding their resources (Lazarus & Folkman, 1991). According to these authors, harm refers to psychological damage that has been done in the past to this person. Threat is an anticipation of a harm that could be imminent in the students mind. Challenge involves difficulties in overcoming difficult situations mobilizing and deploying coping resources.

Stress is a complex multivariate process that includes an input such as a stressors or an event; an output as it would be the person's subjective reaction to the conditions of his ways of living and the mediating activities present in his standards of living that has an impact in the coping with the factors known as stressors (Lazarus, 1990). "From this perspective, international students' appraisal of stress may be defined as the process during which they assess and perceive their interactions with the host cultural environment" (Chen, 1999, p.51). When considering the differences between their own culture and the hosts we have to consider the level of adequate language skills, their own level of academic skills in relation with the native college students; as the social and interaction abilities they possessed.

On the other hand, Ishiyama cited by Chen (1999) believes that the difficulties in verbal and written communication (Spanish in the case of the Mexican private university UDEM as well as English for Asian college students attending the course of Culture of Mexico, course given in English for international students who doesn't have the level of skills acquired to attend the course in Spanish) may cause international students to feel uncomfortable in daily life and may lead to feelings of insecurity.

In this sense, Aubrey cited by Chen (1999) states that stressors fall into two categories: stressors related to the academic and educational environment, and stressors in the sociocultural and personal domain. Furthermore, some of the educational stressors may include performance expectations, system of adjustment and test-taking anxiety.

Considering that the international students are required to attend different courses, they have to adjust to different environments and different levels of demands in order to fulfill the academic requirements. Writing essays in a different language, performing in presentations as well as the daily interactions between peers in the classrooms may have a relevant significance in this sense.

The adjustment process may vary according to the level of skills and abilities of each student. Some may find it relatively easy to adjust once they get to know their teachers and classmates. But in other cases, because of their own skills and expectations this adjustment may have a difficult time to achieve. In terms of test-taking the language in which the tests are written may become a significant obstacle to overcome.

In a general perspective one of the main differences between Mexican college students vs. international students according the Mexican faculty members interview is the level of class participation. Some students (Americans and Canadians) are used to ask and challenge their teachers. But Asians (Korean, Japanese, and Chinese) and some Europeans (German, French, and Turkish) are more prudent with the level of interaction sometimes even becoming silent students when expected to participate.

On the other hand, Asian students as used and accustom to follow instructions and have a high level of respect towards their teachers. In other words, the Asian system carries a strong notion of distance between professor and student to emphasize respect and order (Chen, 1999, p. 54).

Finally, two other stressors can be found and because of their relevance should be address and researched in a profound manner. Financial factors such as scholarships, expenses, costs of tuition and traveling expenses may become strong stressors especially for international students' adjusting to their new environment. As well as the racial prejudice that can still be present in some regions of the world. Color or skin, language, nationality, and even gender may be elements of hard acculturation process for international students in some cultures.

According to Schafer cited by Robotham & Julian (2006) stress can have a positive effect in students allowing them to respond in an effective way during an emergency. As well as taking into consideration that some level of stress will be present in a daily base in the life of college students. In this sense, there has been a lack of longitudinal studies posting the factors that cause them stress according to the student's perceptions of these factors. It's necessary to adopted for such matter a qualitative approach in its methodology in order to have a holistic perception of these matters.

As we stated before, some of the most common stressors experienced by college students include the examinations, time frame in their stay in the host country as well as the financial pressures that a foreign student could encounter.

According to Ross, Niebling, and Heckert, cited by Robotham & Juian (2006) the changes in their sleeping and eating habits, the increase in their new responsibilities and homework considering the language barrier that might have a negative effect in some students as well as the fear to failure in this new experience plus the parental pressure present in some cases cause a significant number of stressors to considered in international college students attending our higher educational universities.

Students respond to stress in varies ways according to Misra, McKean, West & Russo cited by Robotham & Julian (2006) "These responses can be categorized into emotional, cognitive, behavioural and physiological reactions" (p.112). In terms of emotional response we could find some level of fear, anxiety, guilt or depression; where as in the cognitive response there seems to be an increase in the stressful situations.

In relation with the behavioural we can find an abuse of himself or others, irritability to simple and small situations that wouldn't make a difference in these known surroundings and in a physiological response an increase of sweating, headaches, weight loss or gaining for such matter as well as presenting body aches.

It is common for international college students to feel stomach ache after long weekends blaming the food or water taken; as well as having a cold. This has been reported by some faculty members of the private university selected, giving courses to international students. According to Abouserie cited by Robotham & Julian (2006) approximately one in ten students may need professional support to reduce their levels of stress. On the other hand, many individuals would not admit they suffer from stress believing they could be perceived as weak increasing a peer pressure from colleagues becoming a stressor as Scott cited by Robotham & Julian (2006) states.

2.3. *Strategies for Counselors and Faculty Members*

“College counselors often need to modify traditional counseling theories and techniques to meet the particular needs of individual clients.....Becoming competent in multicultural issues, values, and beliefs of diverse clients may aid college counselors when working with a diverse population” (Olivas & Li, 2006, p.217) .

According to Ying and Liese cited by Olivas & Li (2006) in their research “Initial Adjustment of Taiwanese students to the United State” they found out that level of homesickness was the strongest predictor of poor adjustment.

On the other hand, in the study conducted by Mallinckrodt and Leong called “International graduate students, stress, and social support” cited by Olivas and Li (2006) the quality of the relationships between the foreign students and the faculty members, as well as quality of instruction and the continued presence of staff members interested in their own development can turn out to be a protective function to be well-being of the students undergoing their encounter stress. In this sense, it is convenient to take into consideration the eight strategies for positive adjustment to stress proposed by Tseng and Newton (2002) in their study called International students’ strategies for well-being: (1) Know self and others as to understand the similarities and differences between one’s own culture and the host culture. In this way, the transition between cultures will go smoother, (2) Make friends and build relationships as to learn to take advantage of friendship between your own peers. Other foreign students could be of great value in your say in this new country. College students, faculty and staff members of the university can become allies helping overcome difficulties in during your stay, (3) Expand individual worldview as to “...enlarge one’s field of vision as well as to broaden one’s knowledge of the world is a significant way to strengthen individual adjustment capabilities” (Tseng & Newton, 2002, p.595), (4) Ask help and handle problems as to in order to be able to adjust efficiently, it’s adequate to ask for support and help to the staff members of the faculty in the host culture as well seeking for assistance to other peers in the college, this becomes a useful method to deal and solve the problems encountered, (5) Establish cultural and social contacts as to be open to participate in extracurricular activities as well as social events design by the international program department. This will be an excellent opportunity to get to know new acquaintances, (6) Build relationships with advisors and instructors as to the international students should keep an open mind and be flexible in order to build successful relationships with advisors as well as instructors assigned during his stay in the college, (7) Become proficient in the English language as in the case of international students attending the private university, it’s convenient to increase their level of proficiency in Spanish considering that they are attending courses in Spanish relating with Mexicans. Therefore, they have a diverse opportunity to increase their knowledge of the foreign language, and (8) Use the tactic of “Letting go” as to according to some students, the best way to lessen stress and gain well-being was learning to let go of situations they couldn’t resolve. Don’t give too much value to situations that can be left alone.

3. Purpose and methodology

3.1. *Purpose*

In order to understand Stress and its’ effects in International Students in Higher Education in a Mexican Private University in a holistic way, it is convenient to approach this study in a Mixed-Methodology.

From a methodological point of view, the majority of previous studies related to stress in higher education college students have focused on a quantitative approach, where participants complete a self-report inventory that claims to measure stress, well being or stressors (Robotham, 2008). Examples of these inventories are:

- The Hassles Assessment Scale for Students in College (Serafino, & Ewing, 1999).

- Student Life Stress Inventory (Gadzella, 1991).
- The College Chronic Life Stress Survey (Towbes, & Cohen, 1996).
- The Student Stress Scale (Insel, & Roth, 1985).
- The Academic Stress Scale (Abouserie, 1994)
- The Perceived Stress Scale (PSS) (Cohen, Kamarck & Mermelstein, 1989)

Using the Perceived Stress Scale (PSS) 10-item version we will be able to measure the stress according to the Student's point of view. In the Quantitative analysis the descriptive statistics will reflect the emotions and situations that might produce some degree of stress as well as the type of stressors present in the student's life in this foreign university.

Using the statistical procedure of one-way analysis of variance (ANOVA) we could establish an analysis of the outcome using SPSS-18 in order to accept or refuse our null hypothesis stated as follows:

Ho - The level of stress is equal for the male international students as for the female international students.

Or on the other hand we could accept or refuse or alternative hypothesis stated as follows:

H1 - The level of stress is significantly different between the male international students vs. the female international students.

Taking into consideration the results obtained in these procedures, we will be able to proceed with the development of the Focus Groups (FG) in order to understand the effects of stress in their daily life in campus as well as the type of stressors perceived by the students in a subjective sense. We will also include two interviews with the academic staff, who are now days teaching courses to foreign students.

According to Green, Caraceli, and Graham cited by Sydenstricker (1997) among the purposes for a mixed-method evaluation design we can find five major highlights of evaluation which are: Triangulation, Complementarity, Development, Initiation, and Expansion.

In this sense, the study taking into consideration the triangulation will increase the chances of controlling some of the threats or multiple causes that might influence our results. In relation to the Complementarity we will use a diverse of instruments such as the PSS, interviews and focus groups in order to add information for the future analysis of data.

Once the PSS is applied we will be able to perform the Focus Groups (FG) developing the Analysis and Report according to this technique (Krueger, 1998); giving us the development as a result of this mixed-method approach. As a result of this, we will have an initiation stimulating new questions to the faculty professors adding more relevant information to this research.

3.2. *Sample*

A group of 62 international students arrived in the semester of autumn of 2011 and a sample of 57 students participated answering the surveys and a group of five from the sample collaborating in the focus group.

The sample was composed as follows: 27 males, 47.37% of the sample & 30 females, 52.63% of the sample.

Total of participants in the sample are 57 students from the following countries: Germany, México, Brazil, UK, France, Hong Kong, Australia, South Korea, China, Finish, USA, Netherlands, Turqui, Japan, Canada, Spain and Switzerland.

3.3. *Instrument and Procedure*

3.3.1. *Quantitative Approach*

“Perceived Stress Scale (PSS) 10-item version is the most widely used psychological instrument for measuring the perception of stress; It is a measure of the degree to which situations in one’s life are appraised as stressful” (Cohen, 2005, p. 1). The items were designed to tap how unpredictable, uncontrollable, and overloaded respondent international students find their lives. The scale also includes a number of direct queries about current levels of experienced stress, in a general perspective, the questions in the PSS ask about the feelings and thoughts during a period of the last month (Cohen, 2005).

The validation of this instrument can be found in the research paper Further Psychometric Support for the 1-Item Version of the Perceived Stress Scale from Roberti, Harrington & Storch (2006). The Cronbach’s alpha reliability for the PSS of 10 items obtained by the authors using SPSS-10 is .89. The Cronbach’s alpha obtained in our research using SPSS-18 is of .82.

The procedure established to apply the PSS, according to the authors, is to apply the instrument during the first two weeks of the arrival of the international students to the foreign university. With the data of this scale we will be able to produce the interview guide questionnaire for our focus group (Morgan, 1998) in relation with the type of items ask in the 4th stage K-Q (Key Questions) of this technique.

3.3.2. *Qualitative Approach*

Focus Groups will be applied following the instruction of Morgan & Scannell (1998) of four steps: Planning, Recruiting, Moderating, and Analyzing and reporting with all the inside criteria that this technique implies in smaller groups for focus groups. The Questions to follow our structure for the FG include the following types: Opening, Introductory, Transition, Key and Ending questions according to Krueger (1998).

The moderating of the FG will include a moderator and two assistant moderators taking into consideration the structure offered by Kruger (1998) in relation with the responsibilities and skills applied in this qualitative approach. Once this process is completed all the data will be included in the corresponding formats added in the appendix along with the transcripts and full report for future use to the reader.

3.4. *Data Analysis and Findings*

3.4.1. *Quantitative Analysis*

Using the SPSS v-18 the results of the ANOVA of each item, as well as the Total Stress Level obtained are revealing a significant difference between genders in relation with the items 2, 3, 8, and 9. As well as the Total level of Stress obtained by summing across all scale items. (See Fig. 1).

Analyzing these results, the sense of not being able to control important issues are more frustrating for the female international students than for the male international students. Therefore, in the item 2 the null hypothesis is rejected and the alternative hypothesis is accepted. In relation to the level of nervous and stress feelings, the female international students felt a higher level than the male international students. So the null hypothesis is rejected and the alternative hypothesis is accepted in relation to the item 3 of the scale used.

As far as the feeling of being “on top of things” the female students’ sense is higher vs. the male students, therefore there is higher level of stress related to the item 8. The null hypothesis is rejected and the alternative hypothesis is accepted. The item 9 is related to the level of anger when the student does not have control of outside issues. The level of female international students is higher vs. the male international students. The null hypothesis is rejected and the alternative hypothesis is accepted.

According to the Perceived Stress Scale used, the Total level of Stress is higher in a significant degree according to the data obtained, there the null hypothesis is rejected and the alternative hypothesis is accepted. In a general sense, we can find in all the rest of the items a relative difference, not as significant as in the items 2, 3, 8, and 9. Only in item 4 the level in the female students is lower than the male students. This item is related to the confidence in the ability to handle personal problems, where the male has a higher level of ability in this sense.

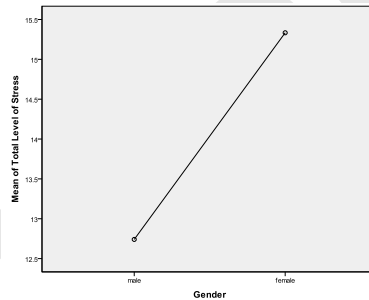


Fig. 1.

But in terms of the Total Level of Stress gained, the level is significant higher for the female students as these affirmations are shown in the means plots showed as follows:

Table 1. The Cronbach's alpha obtained in the research = 0.820

		Sum of Squares	df	Mean Square	F	Sig.
item 1	Between Groups	.044	1	.044	.080	.778
	Within Groups	30.167	55	.548		
	Total	30.211	56			
item 2	Between Groups	3.194	1	3.194	2.167	.147
	Within Groups	81.052	55	1.474		
	Total	84.246	56			
item 3	Between Groups	3.294	1	3.294	4.050	.049
	Within Groups	44.741	55	.813		
	Total	48.035	56			
item 4	Between Groups	.928	1	.928	.837	.364
	Within Groups	60.967	55	1.108		

	Total	61.895	56			
item 5	Between Groups	1.156	1	1.156	1.252	.268
	Within Groups	50.774	55	.923		
	Total	51.930	56			
item 6	Between Groups	.187	1	.187	.179	.674
	Within Groups	57.707	55	1.049		
	Total	57.895	56			
item 7	Between Groups	.702	1	.702	.629	.431
	Within Groups	61.333	55	1.115		
	Total	62.035	56			
item 8	Between Groups	2.274	1	2.274	2.613	.112
	Within Groups	47.867	55	.870		
	Total	50.140	56			
item 9	Between Groups	5.970	1	5.970	5.638	.021
	Within Groups	58.241	55	1.059		
	Total	64.211	56			
item 10	Between Groups	.395	1	.395	.361	.551
	Within Groups	60.167	55	1.094		
	Total	60.561	56			
Total Level of Stress	Between Groups	95.517	1	95.517	2.497	.120
	Within Groups	2103.852	55	38.252		
	Total	2199.368	56			

3.4.2. Qualitative Analysis

The Focus group was active and the students were participative along the session. According to the structure planned the session was prepared before hands with a series of questions, begging with some ice breakers to start the interaction.

Then, the questions were focus on their perception of stress experienced so far in their first two weeks in the city. In this sense, the general perception of the group was that it was more the dangerous the idea spread in their own countries before arriving to Monterrey, Mexico than their own reality lived so far.

Parents and friends were concerned of the news in the media such as newspapers and news broadcast on TV. So far, their impression was overwhelming in terms of the friendliness they have experienced with peers and teacher's staff. When asked about the way they were treated in the classrooms four out of five responded that the professors would extend the deadline of assignments and reports considering they might be traveling around the country. That special treatment was considered "cool" to them.

On the other hand, they all felt a sense of help from peers in relation to instructions not cleared to them, especially with the foreign students learning Spanish in the beginner's levels. But they were all "shock" to have to spend too much time in classes hearing the professors repeat themselves explaining the right way of cite authors in academic papers as well as regular instructions already given in earlier classes.

Three out of five students were "against" the rules in their classes of the professors taking assistant in a daily bases. They mentioned that in their universities in Germany, France and Australia the students could attend to their own discretion considering their own personal agenda and level of commitment to the specific class. In other words, they felt like being back in High School with this action from the professors.

In terms of their perception of stress with this examples and situations explained before, they all agreed they felt a 3.5 level of stress in a scale of 1 through 5. They also felt stressed in relation to their assignments considering they were taking 4 to 6 subject each and having only a week between the instructions and directions given to do this assignments and a week later as a deadline to hand them in for evaluation. Three out of five students mentioned that in their universities they would have instructions hand them to them at the begging of the course and a deadline dated to deliver them in advances given them at least one to two weeks to accomplish their assignments.

They also distinguish the difference between their own professors and the Mexican ones in relation to appointments that could be previously establish with them to check-up advances in their projects and to have recommendations to their own personal topics assigned. They felt in a significant degree, 4 from a scale of 1 to 5, they were wasting their time listening to some Mexican students complained in class in relation to their projects as well as asking the same questions over and over again in terms of the form of their projects and assignments.

As far as their personal safety, they all felt safe in the university and their social life visiting the outsides of the city. They all felt surprised with the level of friendliness from their own peers as well as the staff members of the university. They all felt a high level of support from the staff members of the International program of the exchange students from the university, as well as their own professors in and out of their classrooms.

The stress they felt was stated as far as homework and exams were concerned not knowing if they would be able to understand the written spanish taking into consideration that four out of five we also taking several courses from their own mayors in spanish with Mexican peers.

4. Discussion and implications

4.1. Institutional Procedures to Support International Students

The staff members of the Dept. of International Students are personal trained to deal with the problems concerning the affairs exchange students might go through along their stay in the institution.

As far as their integration with their Mexican peers, all foreign students are part of the integration program consisting of the support and friendship offered by Mexican students volunteers, who as part of their social service program, help new international students with academic support in terms of answering questions related to campus offices and procedures that they have to deal with.

On the other hand, they offered their time and support as well as in their personal interest of getting to know the “cool” places to hang out and have distractions younger’s might be interest in. The Dept. of International Student’s has several programs as housing is concerned. Not only has the private university the possibility to offered housing in their dormitories facilities including their shared or individual bedroom, as well as the complete facilities in the buildings of housing including gym, tennis and football courts, tracking field and cafeterias and restaurants inside the institution; As well as their copy centers, library, social spots, theater, book shop and chapel according to their regular schedules. All students, as well as faculty members, can use the taxi program where a staff of safe drivers with register cars are able to take them into the city and downtown areas having a safe trip round trip.

On the other hand, foreign student might want to rent a studio or department sharing with other international students. They have access to the institution database of renters who are checked by the Dept. of International

Students. This data base also includes Mexican families willing to accommodate foreign students who might need a place to stay and also those who are interested in interacting with natives from this country being able to practice and learn more Spanish in a daily basis. Most of these families have youngsters that can also interact with them. Therefore, this option is one of the most required form the international students arriving each semester.

As far as the faculty members, professors have full access to the support and guidance from the trained professional in relation to possible awkward situations that might need attendance. The profiles of faculty members are professors with teaching experience to foreign students from university level. Each professor has also the support of the director of each department according to the subject and course given. For example, the language department is directed by a foreign experiences academic who is in charge of Mexican and foreign professors teaching to Mexican and foreign students several languages according to the demands of academic needs.

In the case of academic courses taken from different career programs, the faculty members are available to tutoring session previously scheduled by appointments to help those students (Mexican or foreign) who might feel the need of support. Furthermore, most professors would request collaborative assignments integrating foreign students with Mexican students willing to help their peers with the care required in several study sessions in the library and classroom activities.

4.2. Factors of Stress Affecting Learning according to Faculty Members

According to the interviews of three faculty members, the most common factors affecting international students are as follows:

The level of domain of Spanish in order to succeed in classes taught in Spanish. When you have a group of 25 Mexican students you can't stop all the time to attend the special needs of the international students. When this case shows up, we recommend to the foreign student the possibility of taking the course in English until they feel more confident to take the course in Spanish with the rest of the peers.

The need to adapt and respect rules in the class as far as the attendance policies. Most of the foreign students demand free will in terms of their attendance records arguing they have previous plans of traveling during their weekends not being able to dedicate 100% to their courses. The foreign students need to program their social activities according to the time off left after completing their academic needs.

The ability of adapting to a different strategy of teaching in a Mexican private university. The profiles and needs of their Mexican peers might be different to the one they might experience. Therefore, they must take into consideration these differences before having a negative attitude in class.

Finally, the three faculty members acknowledged the need of informing foreign students they must try to adapt their learning skills in relation to the outlines of assignments per week or by terms as the academic programs is structured. The flexibility teachers can have, are limited in numbers of opportunities appeared avoiding the claims of their Mexican peers feeling unfairly treated in class. The balance must be taken care of by the professors in order to have a successful course with Mexicans and foreign students.

5. Future study and limitations

The research team acknowledges the need to study furthermore the perceptions of stress in foreign students in relation to their interaction with the Mexican professors. According to the answers given by students and faculty members, their points of views are opposite to a balance terms of performance requested and needed.

In this sense, a tutorial guidance class must be offered to those foreign students in need of an extra support, as showed in the outcome of the focus group analyzed.

In terms of the instrument applied the research team felt satisfied with the obtained results, taking into consideration the time assigned to this research.

We also have to acknowledged and thank the support and help received by the Department of International Students, Directors of the Language and the Humanity Department, as well as the academic staff members interviewed along this research, and all the international students who participated in surveys and interviews.

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University preparatory class students' study skills

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ABSTRACT

In this study, aiming to identify the university preparatory students' study skills and in which survey method was used, Study Skills Scale developed by Kaner and Kesiktaş (2005) was used and Cronbach Alpha reliability of the scale was found as 0,889 for the current study. In the study, mean, standard deviation and Pearson correlation analysis were used. According to the findings of the study being carried out with 278 students, that students "always" perceive themselves competent in the sub-scale "Doing Homework Effectively and Preparing for Exams (DHEPE)"; "sometimes" in the sub-scales "Studying in a Systematic and Organized Manner (SSOM)", "Problems Faced in Learning (PFL)", "Organizing the Study Environment (OSE)", "Orderliness and Appropriate Classroom Behavior (OACB)" and "never" in the sub-scale "Asking for Help (AH)" were identified. In the study, that there was a high positive relation between the sub-scales "Doing Homework Effectively and Preparing for Exams" and "Studying in a Systematic and Organized Manner"; there was a low negative relation between "Doing Homework Effectively and Preparing for Exams" and "Problems Faced in Learning"; there was a medium positive relation between "Doing Homework Effectively and Preparing for Exams" and "Organizing the Study Environment" and "Orderliness and Appropriate Classroom Behavior"; there was a very low positive relation between "Doing Homework Effectively and Preparing for Exams" and "Asking for Help" were identified. In the study, that there was a low positive relation between the sub-scales "Studying in a Systematic and Organized Manner" and "Problems Faced in Learning", "Organizing the Study Environment", "Asking for Help", "Orderliness and Appropriate Classroom Behavior" were also identified. In the study, that there was a low positive relation between the sub-scales "Problems Faced in Learning" and "Organizing the Study Environment" and "Orderliness and Appropriate Classroom Behavior"; there was not a relation between the sub-scales "Problems Faced in Learning" and "Asking for Help" were identified. In the study, that there was not a relation between the sub-scales "Organizing the Study Environment" and "Asking for Help"; there was a low positive relation between "Organizing the Study Environment" and "Orderliness and Appropriate Classroom Behavior" were identified. In the study, that there was a very low positive relation between the sub-scales "Asking for Help" and "Orderliness and Appropriate Classroom Behavior" was also identified.

Key Words: Study Skills, University Preparatory Class Students

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INTRODUCTION

Today's educational systems do not only envisage information upload, they rather emphasize the developing physical, emotional, cognitive and social skills and sustaining this development both in individual and in social terms in line with modern educational approaches. In this context, developing individuals in every field and involving them in a happier, productive and social life more actively are aimed in accordance with the education process (Yeşilyaprak,2010).

Assessment of the educational process with this perspective has required bringing forward various viewpoints regarding study skills. In this context, study skills defined as "effective use of specific methods and techniques in order to realize learning aims" by Uluğ (2011) and Yıldırım, Doğanay and Türkoğlu (2010) in the related literature are also regarded as a structure that includes planned manners of studying in general (Crow,1968), organizing the study environment suitably (Dodge,1994), implementation of effective reading skills (Lewis and Doorlag,1999), providing necessary arrangements to ensure effective listening skills to take place and to identify skills related to note taking (McEvan,1996), ensuring active participation in classes (Smith,2000), perception of basic qualities related to doing homework (Thomas,1993), preparing for exams as needed (Uluğ,2011) and the tasks necessary to undertake in order to achieve success in exams (Yeşilyaprak,2010).

Although study skills include several independent skills that are meaningful on their own, regarding the qualities included in study skills as independent form each other or as alternatives to one another is out of question. In this context, study skills are regarded as complementary skills and it is necessary to approach them as a whole in order to increase success levels (Gettinger and Seibert 2002).

Students' lack of productive study skills or inadequacies to acquire study skills that will lead them to their aims are regarded among the main reasons of academic failure (Harvey,1998). Following this perspective, Yeşilyaprak (2010) stated that lack of correct and effective study skills will never lead to success regardless of the time spent on studying.

In this context, according to Yıldırım, Doğanay and Türkoğlu (2010); students who do not study in line with productive and effective study methods and techniques cannot plan the study process, adapt to the class level and motivate themselves to study and therefore face failure. On the contrary, students with productive and effective study skills are seen as students with higher success levels and more positive attitudes towards school (Türkcan and Öcal, 2003). Kiewra (2002) stated that study skills should be taught to students separately and also remarked that using appropriate and effective strategies would make it easier for teachers to teach students these skills. Crotta (2004) who indicated that teachers should focus on students' internalizing study skills during study skill acquisition also mentioned that this perspective should be taken as a basis to ensure that study skills are transformed into a lifelong habit. Strichart and Mangrum (2002) identified that paying attention to the use of creative activities in developing study skills and effective use of creative skills will be very beneficial along with the activities provided in textbooks.

According to Gettinger and Seibert (2002), teachers should not confine themselves to narration and should also present these skills in their own behaviors as role models during the process of study skills acquisition because when students observe teachers using these skills they will comprehend the importance of these skills better. Polloway and Epstein (1994) stated that the majority of teachers thought study skills could be developed with the help of homework. In this context, Polloway and Epstein (1994) identified in their study that teachers did not provide extra training about study skills other than giving students homework, did not undertake activities that could be beneficial to students regarding study skills, did not

allow the use of auxiliary materials and tools, did not provide peer support, did not check homework regularly and did not encourage students sufficiently. Witzel and Mercer (2003) expressed that if students are given homework to acquire study skills, use of reinforcers during homework checks will support the acquisition of study skills and reinforcers will provide a motivation model for students in this stage. The researchers also mentioned that teachers should regularly follow the literature regarding the use of reinforcers in study skills acquisition. In their research, Wallace, Cox and Skinner (2003) identified that by doing homework piece by piece during study skills acquisition will help teachers and students to act in stages and therefore the activities achieve the goal more successfully.

As a result, it is seen that using different models, providing homework in parts or segments, creative activities, home based activities and teacher-parent-school management and staff interaction are important respectively in development of students' study skills in addition to the methods the students are taught these skills. Study skills acquired in this manner ensure acquisition of productive study habits.

Investigation of the current literature in our country shows that there are several studies that examined the relationships between homework and providing students with study skills (Çolak,2001), between university students' study skill levels and the views of instructors and teachers (Arıkan,1999), between students' study skills and their attitudes towards studying (Küçükahmet,1987), students' study skills (Akçamete, Gürgür, Kış and Kayaoğlu,2002), study skills of primary school 8th graders (Uluğ,1981), high school entrance exams' level of prediction based on parental attitudes in adolescents, exam anxiety and study skills (Azazi Aslan,2005), relationship between study skills orientations of 7th and 8th graders and the students' favorite type of knowledge from among printed teaching materials (Deryakulu,1998), study skills of university students (Bay,Tuğluk and Gençdoğan,2004), study skills of students in inclusion and under risk (Dolunay Kesiktaş, 2006), the effect of study skills on achievement and permanency in 8th grade English class and (Korkmaz,2010), variables that affect teacher candidates' study strategies (Erdamar Koç,2010), study habits of students enrolled in faculty of education and faculty of science biology departments (Temelli and Kurt,2010) and study habits of university students (Sünbül et.al.,2011). The fact that no previous study investigating study habits of university prep class students who take foreign language training exists shows the need for the current research.

METHOD

The study aiming to identify self competence levels of students regarding study skills is a survey. According to Karasar (2007), survey model is a research approach that aims to describe a past or present situation as is.

The study was implemented on 278 students randomly selected from among 560 students enrolled in prep classes of a state university in the Western Black Sea region. Simple random sampling is a type of sampling in which all elements in the universe have equal chance of selection (Karasar,2007).

“Study Skills Scale” which was developed by Kaner and Kesiktaş (2008) was used in the study for student self assessment regarding their study skills. The scale has a total of 55 items and 6 dimensions: Doing Homework Effectively and Preparing for Exams (DHEPE), Studying in a Systematic and Organized Manner (SSOM), Problems Faced in Learning (PFL), Organizing the Study Environment (OSE), Asking for Help (AH) and Orderliness and Appropriate Classroom Behavior (OACB).

The scale is a 3-point Likert type scale (1=never, 2=sometimes, 3=always). Scoring is reversed in some items (DHEPE 2, OSE 1, PFL 1, PFL 2, PFL 3, PFL 4, PFL 5, PFL 6, PFL 7, PFL 8, PFL 9, PFL 10) since they are expressed negatively. The highest score from the scale is 165 (number of items multiplied by three) and the lowest score is 55 (number of items multiplied by one). High scores show that the students assess themselves as competent regarding effective study skills.

Reliability scores of the scales in the current research are found to be: Doing Homework Effectively and Preparing for Exams (DHEPE): 0,832; Studying in a Systematic and Organized Manner (SSOM): 0,767; Problems Faced in Learning (PFL): 0,702; Organizing the Study Environment (OSE): 0,616; Asking for Help (AH): 0,473; Orderliness and Appropriate Classroom Behavior (OACB): 0,632 and the reliability for the whole scale was found to be 0,889.

Distribution of students' perception of competence levels regarding study skills in the sub scales and in general was analyzed with the help of means and standard deviation values. Pearson Correlation analysis was used to examine the relationship among students' perception of competence levels regarding study skills.

The scale in general shows that the highest score is 165 and the lowest score is 55 when perception of competence levels is investigated regarding study skills. High scores point that the students perceive themselves as competent in terms of using effective study skills. 51-59 score range shows that students never perceive themselves to be competent; 92-128 score range points that students sometimes perceive themselves to be competent and 129-165 score range shows that they always perceive themselves to be competent.

FINDINGS, COMMENTS AND SUGGESTIONS

First Sub Problem: What is students' perception of competence levels regarding the study skills in the subscales and the whole scale?

Table-1: Means and Standard Deviation Scores Regarding Study Skills Subscales and the Scale as a Whole

	N	\bar{X}	S
DHEPE	278	43,76	5,48
SSOM	278	18,87	3,69
PFL	278	21,85	3,43
OSE	278	19,48	2,74
AH	278	5,72	1,41
OACB	278	11,73	2,08
GENERAL	278	121,41	13,10

Table-1 shows that students always perceive themselves to be competent (=43,76 (S=5,48)) in “Doing Homework Effectively and Preparing for Exams (DHEPE)” sub dimension in terms of using effective strategies while doing homework and preparing for exams.

Students sometimes perceive themselves to be competent (=18,87 (S=3,69)) in “Studying in a Systematic and Organized Manner (SSOM)” sub dimension in terms of planning the course of study and using systematic study skills for reading tasks.

Students sometimes perceive themselves to be competent (=21,85 (S=3,43)) in “Problems Faced in Learning (PFL)” sub dimension in terms of skills related to hardship levels in tasks such as listening in class and doing homework.

Students sometimes perceive themselves to be competent (=19,48 (S=2,74)) in “Organizing the Study Environment (OSE)” sub dimension in terms of skills related to providing necessary tools and instruments for school and arranging the study environment satisfactorily.

Students never perceive themselves to be competent (=5,72 (S=1,41)) in “Asking for Help (AH)” sub dimension in terms of asking for help from others in situations where they have difficulties during academic work.

Students sometimes perceive themselves to be competent (=11,73 (S=2,08)) in “Orderliness and Appropriate Classroom Behavior (OACB)” sub dimension in terms of skills such as doing homework and refraining from activities that are not related to lessons during class time.

The scale in general shows that students sometimes perceive themselves to be competent (=121,41 (S=13,10)) in terms of effective study skills.

Second Sub Problem: Is there a relationship among the perception levels obtained from the subscales of the study skills scale?

Table-2: Results of Pearson Correlation among Competence Perception Levels Obtained from Study Skills Subscales

		SSO	PFL	OSE	AH	OA
		M				CB
DHEPE	r	,65(*)	,33(*)	,52(*)	,10(*)	,47(*)
	p	,000	,000	,000	,048	,000
SSOM	r		,27(*)	,34(*)	,24(*)	,37(*)
	p		,000	,000	,000	,000
PFL	r			,24(*)	,00	,26(*)

	p	,000	,488	,000
OSE	r		,02	,42(*)
	p		,371	,000
AH	r			,11(*)
	p			,030

*p<,05

Investigation of the relationships among perception levels obtained from the subscales of the study skills scale utilizing Table-2 shows that;

There is a positive and meaningful relationship ($r=.65$, $p<,05$) between competence levels in using effective strategies while doing homework and preparing for exams in “Doing Homework Effectively and Preparing for Exams (DHEPE)” sub dimension and in planning the course of study and systematic study skills related to reading tasks in “Studying in a Systematic and Organized Manner (SSOM)” sub dimension.

There is a positive and low level meaningful relationship ($r=.33$, $p<,05$) between competence levels in using effective strategies while doing homework and preparing for exams in “Doing Homework Effectively and Preparing for Exams (DHEPE)” sub dimension and in the hardship levels they face during listening in class and doing homework in “Problems Faced in Learning (PFL)” sub dimension.

There is a positive and medium level meaningful relationship ($r=.52$, $p<,05$) between competence levels in using effective strategies while doing homework and preparing for exams in “Doing Homework Effectively and Preparing for Exams (DHEPE)” sub dimension and providing necessary tools and instruments for school and arranging the study environment satisfactorily in “Organizing the Study Environment (OSE)” sub dimension.

There is a positive and very low level meaningful relationship ($r=.10$, $p<,05$) between competence levels in using effective strategies while doing homework and preparing for exams in “Doing Homework Effectively and Preparing for Exams (DHEPE)” sub dimension and in skills related to asking for help from others in situations where students face difficulties in academic work in “Asking for Help (AH)” sub dimension.

There is a positive and medium level meaningful relationship ($r=.47$, $p<,05$) between competence levels in using effective strategies while doing homework and preparing for exams in “Doing Homework Effectively and Preparing for Exams (DHEPE)” sub dimension and skills such as doing homework regularly and refraining from activities unrelated to school during class in “Orderliness and Appropriate Classroom Behavior (OACB)” sub dimension.

There is a positive and low level meaningful relationship ($r=.27$, $p<,05$) between competence levels in skills such as planning the course of study and systematic study skills in

“Studying in a Systematic and Organized Manner (SSOM)” and in hardship levels regarding listening to class and doing homework in “Problems Faced in Learning (PFL)” sub dimension.

There is a positive and low level meaningful relationship ($r=.34$, $p<.05$) between competence levels in skills such as planning the course of study and systematic study skills in “Studying in a Systematic and Organized Manner (SSOM)” and in providing necessary tools and instruments for school and arranging the study environment satisfactorily in “Organizing the Study Environment (OSE)” sub dimension.

There is a positive and low level meaningful relationship ($r=.24$, $p<.05$) between competence levels in skills such as planning the course of study and systematic study skills in “Studying in a Systematic and Organized Manner (SSOM)” and in skills related to asking for help from others in situations where students face difficulties in academic work in “Asking for Help (AH)” sub dimension.

There is a positive and low level meaningful relationship ($r=.37$, $p<.05$) between competence levels in skills such as planning the course of study and systematic study skills in “Studying in a Systematic and Organized Manner (SSOM)” and skills such as doing homework regularly and refraining from activities unrelated to school during class in “Orderliness and Appropriate Classroom Behavior (OACB)” sub dimension.

There is a positive and low level meaningful relationship ($r=.24$, $p<.05$) between competence levels in hardships regarding listening to class and doing homework in “Problems Faced in Learning (PFL)” sub dimension and providing necessary tools and instruments for school and arranging the study environment satisfactorily in “Organizing the Study Environment (OSE)” sub dimension.

There is no relationship ($r=.00$, $p>.05$) between competence levels in hardships regarding listening to class and doing homework in “Problems Faced in Learning (PFL)” sub dimension and in skills related to asking for help from others in situations where students face difficulties in academic work in “Asking for Help (AH)” sub dimension.

There is a positive and low level meaningful relationship ($r=.26$, $p<.05$) between competence levels in hardships regarding listening to class and doing homework in “Problems Faced in Learning (PFL)” sub dimension and skills such as doing homework regularly and refraining from activities unrelated to school during class in “Orderliness and Appropriate Classroom Behavior (OACB)” sub dimension.

There is no relationship ($r=.02$, $p>.05$) between competence levels in providing necessary tools and instruments for school and arranging the study environment satisfactorily in “Organizing the Study Environment (OSE)” sub dimension and in skills related to asking for help from others in situations where students face difficulties in academic work in “Asking for Help (AH)” sub dimension.

There is a positive and medium level meaningful relationship ($r=.42$, $p<.05$) between competence levels in “Organizing the Study Environment (OSE)” sub dimension and skills such as doing homework regularly and refraining from activities unrelated to school during class in “Orderliness and Appropriate Classroom Behavior (OACB)” sub dimension.

There is a positive and very low level meaningful relationship ($r=.11$, $p<.05$) between competence levels in skills related to asking for help from others in situations where students face difficulties in academic work in “Asking for Help (AH)” sub dimension and skills such as doing homework regularly and refraining from activities unrelated to school during class in “Orderliness and Appropriate Classroom Behavior (OACB)” sub dimension.

According to the findings obtained in the current study, university prep class students always perceive themselves to be competent in skills such as doing homework effectively and preparing for exams; they sometimes perceive themselves to be competent in skills such as studying systematically and in an organized manner, overcoming the difficulties faced during learning, arranging the study environment, doing homework regularly and having appropriate in-class behaviors and students never perceive themselves to be competent in skills such as asking for help from others in situations where they face difficulties in academic work.

Another finding obtained from the study which examines the relationships among competence perception levels found in the sub dimensions of Study Skills Scale shows that the only area where no relationships are found is related to asking for help, problems faced in learning and organizing the study environment. The findings of the current study point to the need to provide students with study skills training. Gettinger and Seibert (2002) stated that students' study systems should be structured in order to increase their academic achievement levels and it is not proper to give the sole responsibility in that area only to the students. According to Babadoğan (2012), acquisition of study skills by students indicates a process that should be undertaken basically under the responsibility of educators. In line with this perspective, it is believed that teachers are as much important as students and parents in the process of studying and they should be as effective. The researcher also states that a study activity that involves only the student is meaningless. Dembo (2001) identifies that teachers who are informed of self learning processes and related study skills will act to teach these skills to students, they will comprehend that effective acquisition of these skills is the most important area to focus and that these skills will provide the students with self control, academic achievement and motivation to learn. Dodge (1994) states that study skills can be learned and that students with study skills have advantages in terms of time.

According to DeBettencourt and Allen (1999), teachers should transfer the information about how study skills work, provide activities related to study skills in the classroom and make an effort in this regard. DeBettencourt and Allen (1999) who state that teachers will contribute to the increase in academic achievement levels with the help of these activities that include teaching students the aims of study skills techniques and methods also mention that providing students with opportunities to present these skills is important. Kiewra (2002) who identifies that study skills should be taught as a separate lesson goes on to say that it is much easier to teach these skills to students with the help of appropriate and affective strategies in line with the aims and content of classes. Crotta (2004) identifies that teacher should give priority to the internalization of these skills by the students and that this perspective should be adopted to provide students with a lifelong habit of using study skills. Strichart and Mangrum (2002) indicate that providing creative activities in the classroom is important for students to acquire study skills and that students may develop in terms of using various tools and instruments and finding per support with the help of creative activities. According to Gettinger and Seibert (2002), teachers should not confine themselves only to narration during teaching study skills and also present these skills in their own behaviors as role models.

Suggestions provided below are believed to be suitable in the light of the current study that investigated the study skills of university prep students.

- The scale in general shows that students sometimes perceive themselves to be competent in using study skills effectively. In this case, awareness should be raised in order to be able to teach students study skills and courses, seminars and similar activities should be provided for teachers.

- Centers should be set up in universities where education specialists who could provide guidance to students in terms of productive study skills and attitudes.
- Educators should not simply transfer knowledge but should be able to ensure student participation in classes by employing various teaching methods and productive study techniques.
- Experimental studies should be implemented in which study skills training activities are tested and effects of study skills on academic achievement are examined.

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4th International Conference on New Horizons in Education

University Students' Computer Literacy Readiness Level In Turkey

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Abstract

In the Information Age, also known as the Computer Age or Digital Age, computer literacy is one of the most crucial 21st century skills. In 2011 in Hacettepe University, different faculty students' knowledge and skills about computer were measured to determine that students whose knowledge and skills were not enough. It was also revealed level of students' computer literacy readiness with this measure. 1685 first year students from eight faculties took the achievement test composed of 60 items. For content validity, achievement test was prepared according to ECDL curriculum. Students' test score statistically analyzed and findings were discussed.

Keywords: computer literacy, university students

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1. INTRODUCTION

Computer literacy, a dimension of information literacy (Behrens, 1994; Akt, Akkoyunlu, 2008; Curzon, 1998), is essential in Higher Education (Reid, 1997). Since in higher education, courses can be designed as blended. On this respect it is emphasized that computer literacy skills are crucial and must be gained. For helping children to acquire computer literacy and the other 21st century skills, in Turkey curriculum of primary and secondary education were changed. At the same time particularly for computer literacy, some projects were started (cited in Şenel & Seferoğlu, 2009): Mobilization For Computer Literacy Project (Bilgisayar Okur-Yazarlığı Seferberliği, 2008), “Closing the Digital Divide” Project (Dijital Uçurumun Kapatılması, 2009). Therefore it is assumed that students acquire these skills before coming university. On the other hand, some universities has ECDL training programme and give certificate to students for computer literacy. The ECDL certificate proves that its recipient possesses some basic skills in using a computer, such as editing a document with a word processor, preparing a table using a spreadsheet, querying a database, browsing the Web (Calzarossa, Ciancarini, Maresca, Mich & Scarabottolo, 2007).

2. Method

The aim of this study was to investigate first year students’ readiness level of computer literacy according to students’ gender and faculties. Data analysis was made by Kruskal Wallis-H and Mann Whitney - U test processed with SPSS 15 for Windows.

2.1. Participants

1685 first year students (N(male) = 931 and N(female) = 749; Table 1) from eight faculties (Table 2) took the achievement test composed of 60 items.

Table 1. Distributions in terms of gender

Gender	N
Female	931
Male	749
Missing value	5
Total	1685

Table 2. Distributions in terms of faculty

Faculties	N
Faculty of Dentistry	143
Faculty of Pharmacy	44
Faculty of Education	526
Faculty of Economics & Administrative Sciences	238
Faculty of Engineering	380
Faculty of Medicine	286
Kastamonu Faculty of Medicine	32
School of Sport Sciences and Technology	34
Missing value	2
Total	1685

2.2. Instrument

ECDL is a computer literacy certification programme (<http://www.ecdl.org>) and ECDL version 3 syllabus consists of seven modules:

- Module 1. Basic concepts of information technology (XP);
- Module 2. Using the computer and managing files (XP);
- Module 3. Word processing (2003);
- Module 4. Spreadsheets (2003);
- Module 5. Database (2003);
- Module 6. Presentation (2003);
- Module 7. Section 1 - Information (XP/2003)
- Module 7. Section 2 - Communication (XP/2003)

Based on this syllabus 60 multiple choice items were prepared for achievement test. To collect data, the achievement test was applied to undergraduate students beginning of the first year first semester. KR-20, the reliability coefficient, was calculated 0,77 for the achievement test.

3. Findings and Conclusion

3.1. The effect of students' gender on Computer Literacy Readiness Level

For independent sample t test, is a parametric test, primarily the assumption of normality was to be checked by Lilliefors corrected K-S test. Female's test score, $(D(931) = 0,09, p < 0,05)$ and Male's test score $(D(749) = 0,10, p < 0,05)$ were not normally distributed. After doing transformation, the values were not normally distributed. Based on this result, nonparametric test was used for comparing two independent conditions: Mann Whitney Test. There is a statistically significant difference between the two group, $U = 224078,5, z = -12,622, p < 0,05, r = -0,308$ (Table 3). In parallel with this finding, it is said that male students' Computer Literacy Readiness Level is higher than female students' Computer Literacy Readiness Level.

Table 3 Mann Whitney U test results

Gender	N	Mean Rank	Sum of Ranks	U	p
Female	931	706,69	657924,50	224078,5	0,000
Male	749	1006,83	754115,50		

3.2. The effect of students' faculties on Computer Literacy Readiness Level

For one way ANOVA, is a parametric test, primarily the assumption of normality was to be checked by Lilliefors corrected K-S test. According to K-S test; all distributions were not normally distributed (Table 4). Based on this result, nonparametric test was used for comparing the groups: Kruskal Wallis H. It is found that there was a statistically significant difference between the groups ($H(7) = 249,011$, $p = 0.000$), with a mean rank of 878,84 for students from Faculty of Dentistry, 815,85 for students from Faculty of Pharmacy, 651,75 for students from Faculty of Education, 672,27 for students from Faculty of Economics & Administrative Sciences, 938,34 for students from Faculty of Engineering, 1146,94 for students from Faculty of Medicine, 1054,00 for students from Faculty of Kastamonu Faculty of Medicine and 1011,03 for students from School of Sport Sciences and Technology. Comparisons between groups which were statistically significant at $p < 0,05$ are shown in table 5 and table 6.

Table 4 K-S test results of achievement test score according to independent factor

		p
Faculty of Dentistry	D(143) = 0,102	0,001
Faculty of Pharmacy	D(44) = 0,135	0,042
Faculty of Education	D(526) = 0,072	0,000
Faculty of Economics & Administrative Sciences	D(238) = 0,111	0,000
Faculty of Engineering	D(380) = 0,087	0,000
Faculty of Medicine	D(286) = 0,107	0,000
Kastamonu Faculty of Medicine	D(32) = 0,080	0,200*
School of Sport Sciences and Technology	D(34) = 0,137	0,103*

Table 5. Comparisons between groups which were statistically significant at $p < 0,05$. (According to difference between the mean ranks and critical difference; Siegel and Castellan, 1988; cited in Field; 2009, p. 567)

	Mean Rank	*	Mean Rank
		>	651,75
1) Faculty of Dentistry	878,84	> Faculty of Education	
		>	672,27
		<	1146,94
2) Faculty of Pharmacy	815,85	<	1146,94
		<	878,84
		<	938,34
3) Faculty of Education	651,75	<	1146,94
		<	1054,00
		<	1011,03
		<	878,84
		<	938,34
4) Faculty of Economics & Administrative Sciences	672,27	<	1146,94
		<	1054,00
		<	1011,03

* If the first group mean rank is higher than second group mean rank, ">" is used. If the first group mean rank is lower than second group mean rank, "<" is used.

Table 6. Comparisons between groups which were statistically significant at $p < 0,05$. (cont.) (According to difference between the mean ranks and critical difference; Siegel and Castellan, 1988; cited in Field; 2009, p. 567)

		>	Faculty of Education	651,75
5) Faculty of Engineering	938,34	>	Faculty of Economics & Administrative Sciences	672,27
		<	Faculty of Medicine	1146,94
		>	Faculty of Dentistry	878,84
		>	Faculty of Pharmacy	815,85
6) Faculty of Medicine	1146,94	>	Faculty of Education	651,75
		>	Faculty of Economics & Administrative Sciences	672,27
		>	Faculty of Engineering	938,34
7) Kastamonu Faculty of Medicine	1054,00	>	Faculty of Education	651,75
		>	Faculty of Economics & Administrative Sciences	672,27
8) School of Sport Sciences and Technology	1011,03	>	Faculty of Education	651,75
		>	Faculty of Economics & Administrative Sciences	672,27

* If the first group mean rank is higher than second group mean rank, ">" is used. If the first group mean rank is lower than second group mean rank, "<" is used.

4. Conclusion and Recommendations

Firstly the aim of this study was to determine gender difference in computer literacy. In parallel with findings it is said that male students' computer literacy readiness level is higher than female students' computer literacy readiness level. Therefore, how this difference influence students' achievement should be checked.

Second aim of this study was to investigate first year students' readiness level of computer literacy according to students' faculty. It is found that there is a statistically significant difference between the groups in this study. When examined comparisons between groups which were statistically significant at $p < 0,05$; faculty of education students' computer literacy readiness level were lower than faculty of dentistry, faculty of engineering, faculty of medicine, Kastamonu faculty of medicine and school of sport sciences and technology students'. Computer literacy is essential every students, especially preservice teacher (Korkut & Akkoyunlu, 2008). For this reason, more research is needed to explore the growth process of preservice teachers' computer literacy in the university.

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Upholding competitive advantage through endorsing corporate social responsibility: case study Pepsico Egypt

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Abstract

Corporate Social Responsibility (CSR) involves the marriage of good business principles with the desire to solve social problems, to improve the environment and to empower communities. The shift in the paradigm of managerial studies and the introduction of new trends and concepts in both Public and Business administration fields paved the way for CSR to rise as a topic of research under the limelight of academic studies creating the opportunity to search it as a concept as well as its related research area. CSR invaded the socially motivated business ranging from the smallest and most localized efforts to the largest and ambitious national and international enterprises. These companies shift to incorporate an environmental social welfare based theme and translate it into business plans and products. The field of scholarly investigation about CSR provides the arena for opportunities to challenge and rethink concepts and assumptions from different fields of management and business research.

The importance of the study arises from the institutional reform process in managerial styles and practices, paving the way to address many research gaps in the development of multi strategies to understand the influence of CSR in management practices and applications as the study tends to highlight the importance of CSR activities to maintain competitive advantage for the Egyptian organizations.

Accordingly, on the academic level, this paper aims to shed the light on CSR concept as a crucial development since the turn of this century showing its importance and contribution to the new trends of management studies. In addition, the study aims to bridge the research gap between business practices and public administration views of CSR within the framework of the Egyptian context. On the practical level, the importance of this study arises from the fact that there are few studies in the field of public administration reflecting on the CSR concept's application in Egypt. Moreover the current conceptualization sometimes considers the unique characteristics of the Egyptian society's enterprises seeking to achieve competitive advantage. In addition, studying the concept and its applications from the point of view of activities associated with perceiving the opportunities to create a balance between maintaining competitive advantage and achieving both profit and society welfare as applied in a case study of PEPSICO Egypt.

Keywords: Corporate Social Responsibility CSR; Social Entrepreneurship; Corporate Citizenship; Competitive Advantage.

1. Introduction

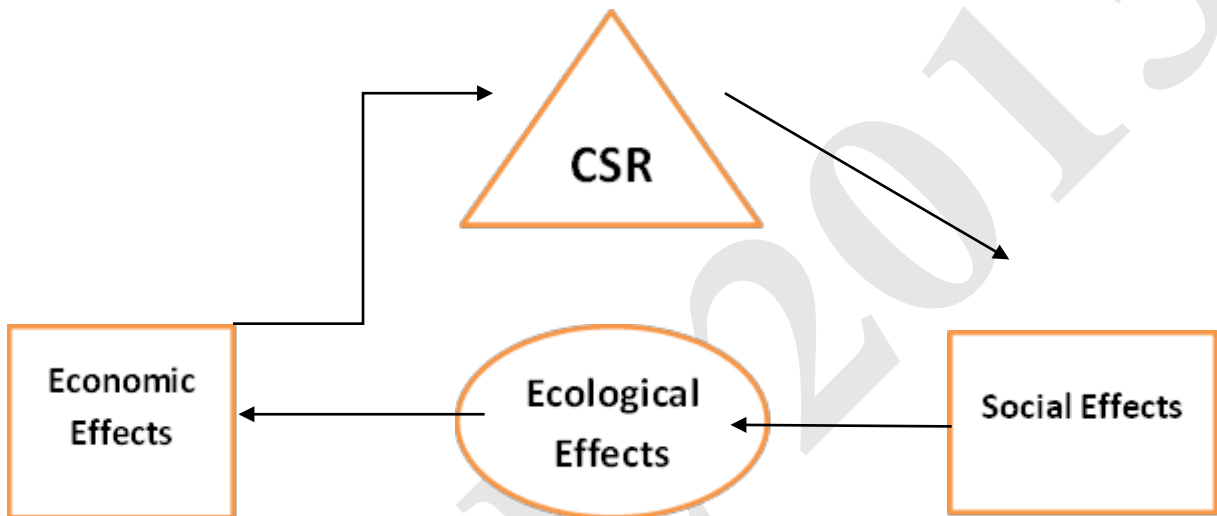
Corporate Social Responsibility CSR invaded the field of business since the year 2000 in a vigorous way. So many corporations worldwide wanted to become more involved in the social welfare of the community and its citizens. The local development goal became crucial for several corporations out of the conviction that the supporting and the focus on the citizen and his human rights will yield profits for both the company and the community served. CSR as a new tendency in the market of both national and multinational corporations is widely used concept. The idea is that in such a competitive global environment of business, the edge of

competition for a company is achieved through both the economical and the social advancement in the market. According to Kotler, achieving CSR through a company in the community is a desire to reach equilibrium between acquiring profit and reinvesting them in the social welfare services of the citizens (Kotler, 7). The implications of social responsibility in the business community entail not only the objective of commercial success but the vision of social involvement and equality. According to Porter, the marriage between good business principles and the desire to solve social problems became crucial in the field of competitive strategy in the market environment. In one of his articles, he advocated the notion that “social responsibility became a priority that is impossible to avoid by the business leaders of any country and any field” (Porter, 4). The idea here is the collaboration between the social environment and the economic needs of any corporation under the umbrella of a clear communication plan conveyed to the community to achieve an integrated competitive strategy. The question here is how can a company maintain a competitive advantage within the market while following the guidelines of the CSR concept within its development plan? Or in other words, what is the nature of the relationship between competitive advantage and CSR concept in the typology of our global business environment? This study tends to review the CSR in terms of its different definitions, history, components, functions, dimensions and approaches. Then it will move to discover the essence of the working relationship between the CSR and the realization of competitive advantage outcome in any organization through highlighting the different strategies used in such process. Secondly the study will practically show how multinational corporations as PEPSICO Egypt can enhance its competitive edge through its CSR activities.

2- Literature Review

CSR: Definitions

The world Business Council for Sustainable development defines CSR as the “engagement of the business environments to contribute to the durable economic development working together with the employees, with their families, the local community and society as a whole to improve their life quality” (Hristea, 2011). The European Commission Forum defines the CSR concept as a phenomenon by which the company is involved in the creation of a better social environment for the citizens of its community in order to gain respect. Both definitions assume the voluntarism of the company in being engaged in such actions, to create a socially added value to the community in which it is working. From this point of view, CSR can be perceived as a “profitable management strategy” as it generates long term credibility between the company and its social environment, affecting accordingly the durability of the company to maintain its competitive advantage (Hristea, 2011). In some research, CSR as a concept is perceived as a bundle of business decisions in the company that would trespass the technical and economic interests of the company to sustain social causes and to fulfil the involvement in the welfare of the community and the citizens (Crisan, 2012). This would wield positive relationships with the society at all its levels covering all possible areas of needs for example as health, education, safety, crime prevention, job creation, environment, poverty and discrimination. As a result, the company here would be entailed to minimize risks and maximize economic and social benefits. The balance here is not easy to achieve. According to Carroll, the idea is to promote development in accordance with parallel social and moral values embedded in the society reflecting on the needs of the people (Carroll, 1991). Many researchers found that some companies would develop internal codes of conduct and management systems that highlight the standards and the guidelines followed by their business leaders in maintaining competitive strategies along the application of CSR approach (Waddock, 2005). According to Hristea, the term of CSR is highly associated with the economic development and prosperity, the improvement of social solidarity and the respect of the environment. The terminology of CSR in this sense would be highly correlated to the ‘triple- bottom- line’ notion advocated in many literatures (Hristea, 2011 and Pendleton, 2004). The integration of the three effects: economic, social and ecological can be seen in the following scheme of the CSR’s Effects on Society:



(Hristea, p.61)

According to Smith, these effects directly and indirectly reflected on the stakeholders involved in the whole system of CSR application. These people are mainly: employees in the company, customers dealing with the company, suppliers, stockholders and the local community within the context of the company activity (Smith, 2011). Then the main responsibility of the company in this sense would be to maximize profits for the stockholders to pay employees fairly, to sell goods and present services to the customers at a fair price to meet suppliers' requirements regarding payment and times delivery, adding to invest in the community to ensure social welfare and an added value to its citizens. Therefore, the above directions and definitions of CSR concept would fall into the broad category of defining the responsibility towards the society.

Our definition in this study will highlight CSR concept as an ultimate decision by the company to ensure the fulfilment of its competitive advantage plan parallel to the achievement of societal needs within the community in which it operates. Therefore, the company in this sense has to jump above itself and create a socially added value to its various stakeholders.

CSR: History

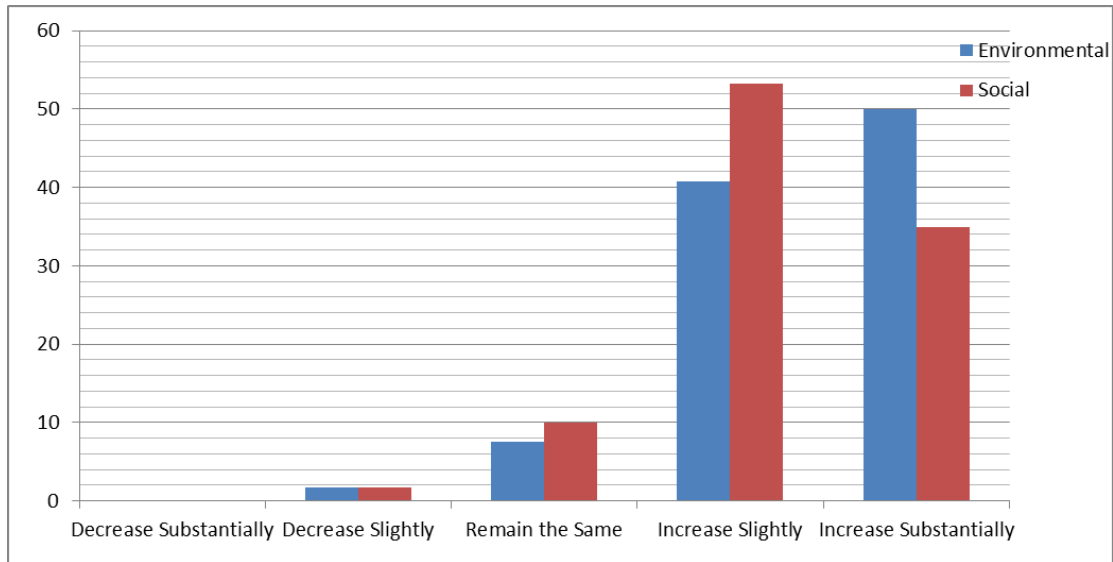
1950's -1960's: According to Bowen, the concept raised from the fact that the actions of the firms affect the life of the population and that business people's responsibility would refer to their obligation to pursue policies in favour to the values of their societies (Rosemaria, 2011). Ethics played an important role in Bowen's literature

that was followed by Peter Drucker who expanded the work in his book “The Practice of Management” focusing on the notion of doing public good as one of the pillars of CSR, as well as the enhancement of stability, strength and harmony (Drucker,2006). Another work by Frederick would reflect in this period that CSR would deal with corporate managers as public trustees and stresses on the idea of balancing the corporate resources to the competing claims (Rosmaria,2011). Later towards the 1960’s, the main focus for Frederick was that firms must widen the scope of their social involvement above their interests using their resources for broad social end (Frederick,2012).

1970’s-1980’s: In 1970, Friedman reinforced the idea of free market rules, laws and ethical boundary of CSR. However, putting financial profit at the tip of the pyramid of priorities for the company requiring long term planning that would yield profit. Therefore this period was tackled by many authors as Friedman Davis and Fitch focusing on the content and the implementation process of CSR that didn’t oppose the financial interest of the business (Rosmaria,2011). In 1980’s business and social interests came closer as the companies realized the presence of their stakeholders and their influence on the business. The new public management arena of study paved the way to CSR concept to prevail subject it realizes the benefits of stakeholders in the society. The term “Public Liability” was used widely to focus on the public aspect of responsibility. In 1982, Donaldson converted the notion of public liability to another terminology involving social contract between business and society (Rosemaria, 2011).

1990’s onwards: The concept of CSR widely prevailing all aspects of business societies but grew under the limelight with the turn of the century. This is mainly because of the growing use of social networks to improve and foster new CSR projects. The human capital investment, the goodwill and reputation of the company were the core of any business development plan. The essence of CSR in year 2000 was “doing good to do well” (Rosmaria,2011), by going beyond maximizing shareholder values to reach better corporate responsibility including social, environmental and governance issues. This idea also was reflected in making companies good citizens to contribute to society’s welfare (Nazari, 2012). The following figure would highlight the changes of CSR activities during the past 5 years, showing that the sustainability of the environment is increasing tremendously. Where it started with 1.7% to increase to 50% and this is due to the worldwide movement towards applying CSR.

Anticipated Change in CSR Activities over the Past 5 Years Percentage of Respondents



Percentage of change
(Harwood, p. 287)

CSR: Components

There are four components that envisage the concept of CSR. First is the philanthropic component which entails serving the community as a good corporate citizen. This means that the company becomes the citizen with all its needs and responsibilities. Secondly, the humanistic and traditional essence of CSR concept as the company in this essence has to perform in a manner consistent with what the society expects regarding the norms and ethics. Thirdly, the legal component of CSR would draw on the notion that the company has to obey the laws of the society. Finally, the profitable component of CSR which is the cornerstone for any company's success plan because in order to serve the society a company has to have a high margin profit to boost its development plans and inject it into the above three components (Carroll, 1991). According to Cunningham, the four stated components of CSR can fall into the trap of conflict of interest. Several questions would pertain about the appropriate responsibility of the government, the overlap between the cost and profit as well as the priority level of the numerous project that the society needs (Cunningham, 2011). So there is always a tradeoff between CSR's components and ultimate profit to the company. Many scholars advocate a Zero-Sum formulation of the concept while pertaining to the social obligations of the business. The Neo-classical school of economics would rely in this sense, that with tougher competition the firms exercise pressure on its stakeholders to fulfill social commitment in order to gain wide acceptance from its opponents (Burke, 1996). The key role played here is by the government in order to ease regulations on firms and corporations giving them the spacious areas to breeze in order to fulfill their social obligations. This would include tax alleviations, less rents on land and corporate tax exemptions.

CSR: Functions

CSR concept entails the following functions required by the company:

1. Protection of the environment.

2. Insurance health and security of the population of the society.
3. The creation of civilized work conditions for employees.
4. Developing a motivational plan for employees.
5. Working on upgrading the standards of living in the community to eliminate inequity and poverty.
6. Ensuring transparency and accountability for projects and actions taken by the company.
7. The application of anti-corruption measures (Hristea, 2011).

The essence of those functions goes parallel to the fundamental values advocated by Koffi Annan, January 1999, in worldwide economic forum from Davos, when he highlighted the force of the collective action to boost CSR towards citizens. He stressed on the universality of human rights as well as the freedom of labor. Moreover he added the elimination of child labor and discrimination of wage pay. Finally the environmental protection was on the top of those values urging several companies to adhere to the responsibility towards the environment using clean technology (Annan, 1999).

CSR: Dimensions

There are 5 dimensions to the concept of CSR: Centrality, specificity, proactivity, voluntarism and visibility. First, centrality refers to how close is the company's objective from achieving the CSR program. It helps to create feedback for the organization to check the consistence of the actions to the mission. Secondly, specificity refers to the ability of the company to gain the benefits of a CSR program in the specific line of their industry. Thirdly, proactivity refers to how behavior is planned and scanned in the absence of crisis conditions. The anticipation of any changes that occur in the environment is crucial in regard to this dimension and is usually achieved through regular SWOT analysis. Fourthly, voluntarism refers to the scope of the decision taken by the company as the business decisions to achieve CSR programs are taken willingly. Finally, visibility refers to company's ability to gain recognition from internal and external stakeholders (Burke, 1996).

Therefore, any company willing to adopt a CSR program has to look and examine those dimensions in order to succeed in the yielding of a socially added value to the community. This value creation would refer to a double faced coin: the economic benefits that a company expects to receive and the surplus in those benefits and profits injected in community service projects. The CSR department in some multinational corporations would include investment in new machinery, new methods of clean technology, brand awareness training and customer services. According to Nazari, companies have to act on the notion of being 'moral agents within the society'. Therefore the above dimensions stated in any CSR program have to fall within the guidelines set by the society. If we look to CSR concept as a social action targeting the satisfaction of social needs, so the underlying principles of CSR dimensions will be as follows:

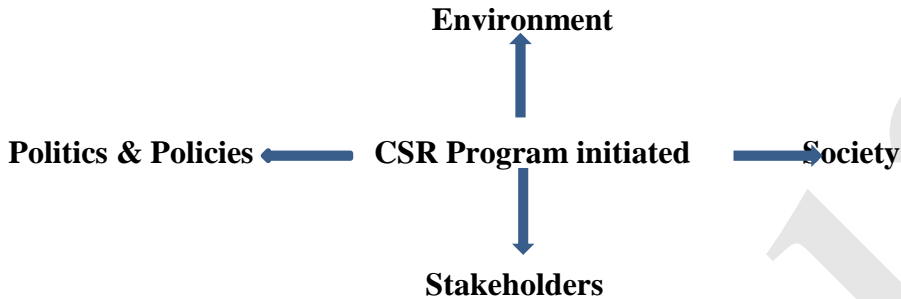
- The business company is a social institution that has to exercise power responsibility
- The business company has to target the involvement with societal issues and needs related to the internal and external environment.
- Individual managers of the business company have to act as moral agents beyond their profitable self-interest they should force CSR as an obligation (Nazari, 2012).

CSR: Approaches

According to Wood, the basic framework of CSR concept in business prevails with the basic rule that "business and society are interwoven rather than distinct entities" (Wood, 1991). The urge behind this notion comes from the increase in stakeholders' awareness of corporate ethical behavior and social responsibility. Moreover, the increasing issues of image and reputation together with the globalization trend advocated changes in the whole business environment. There are two main fashionable approaches that are used by companies in this sense the Push vs. Pull approach. The Push approach would envision business as sitting in the middle and the pressure actors (societal as well as political) are coming at it from outside. Both are pushing the firm to adopt the CSR program.

Political Pressure **→** **Business Firm** **←** **Societal Pressure**

On the other hand, the Pull approach would see CSR program coming from the business idea and reflecting on both society and external environment with the effects.



Therefore, the Pull approach would rely on voluntary & self-regulation with no outside pressure, whereby the proactive nature of the CSR concept would prevail (Vassileva, 2009). According to Hartmann, there are 3 views to CSR approach. First from the economic theory point of view, a firm's only social responsibility is to increase profits as long as it stays within the legal framework and ensure the sustainability of economic development. Secondly, from the employees' point of view, CSR is positively related to employees seeking a job in the organization as they identify with the cause and perspective of the company. Job satisfaction and involvement increase in this sense and CSR would play the role of non-monetary reward for the employees. Thirdly, from a stakeholder's view, the credibility of CSR program is crucial to reap CSR's strategic benefits. The stakeholder would look to the company's authenticity, communication, motives, community affairs and development (Hartmann, 2011).

CSR: Upholding Competitive Advantage

With the growth of globalization, there is an urgent need to emphasize on the design of new international standards for the management of most business organizations. The competitive advantage trend is considered to be one of the new trends in both Business and Public administration, paving the way for so many institutional reforms in business practices. These reforms include the reorganization and re-regulation of so many business to encompass economic, social and political developments within the environmental context. The concept grew under the limelight since the 80's following the 'factor endowments' and "the comparative advantage" theories and was introduced by Michael Porter in his famous "Diamond Theory". According to the international institute for management and Development, competitive advantage's requirements would include the competencies derived from economic and administrative performance of the government and the good business environment in the country allowing to create a socially added value to the community (Younis, 2009). Along this line of understanding competitive advantage, the major question advocated by many researchers is where does CSR concept stands from achieving competition for the company? Well, CSR as previously noted, helps the company to grow its financial and commercial performance positively while emphasizing competitiveness by creating a socially added value to all stakeholders involved with its programs. There is a strategic intersection between CSR and competitive advantages as two faces of the same coin in business development meeting in the area of creating social welfare for the community. As the implementation of CSR programs in any company would yield social, economic and financial advantages, so the major cornerstone of this intersection will be shown in the resulting positive reputation improvement of the company: "investing in CSR records a plus in image building of reputation, with positive effects in the plan of economic performance" (Hristea, 2011). The second cornerstone of

this relationship is the improvement of the market position and competitiveness of the company. If policies of innovation and differentiation through CSR practices would facilitate the access of new markets, it would also increase the competitive edge of the organization as differentiation strategies is one of Porter's advocating in the study of competitive advantage.

The existence of CSR concept in today's life of business organizations cannot be denied. According to the World Business Council of Business development CSR and competitive advantage go in parallel line yielding positive results in along the organization" (Hristea, 2011). According to Vassileva, the major benefits of applying CSR activities that would go in accordance with the achievement of competitive advantage are listed as follows:

- Image and reputation enhancement
- Financial efficiency
- Staff motivation and loyalty
- Market position support
- Customer satisfaction
- Recognition by stakeholders
- Product brand support
- High quality of goods and services
- Promotion of social commitment
- Providing better social services (Vassileva, 2009)

CSR: Competitive Advantage Strategies

CSR Traditional Enlighten Strategy: It focuses on products and processes and aims at achieving profits by cutting costs and improving efficiency through new innovations. The managerial scope of the strategy would entail the company to make decisions in line with the evolution of demands and change anticipated in the society. Moreover, the managerial decisions involve investment and cost of implementation (Lanoizelee, 2011).

CSR Reputation Strategy: Reputation is the intersection between the company's interest and the public interest and it is the source of competitive strategy in this sense, as reputation would help the company to build the image of competency related to CSR. The company is reintegrated within the society which improves both public interest and its economic performance (Fombrun, 1990)

CSR Ethical Strategy: the demand for virtue in accomplishing business transactions and relating the developmental plans of so many companies is the notion behind this strategy. There is a global demand for green products and cleaner technology as well as the increasing demand for CSR related programs to the society. So many paradoxes aroused around this strategy emphasizing the extent of whether acting by ethics would yield better results in sales or not. Some would argue that this is only feasible for small business enterprises or the shop around street corner, but never applicable to business multinational tycoons. In this sense and according to Vogel, the company's responsibility or irresponsibility was not a modifying factor related to its increase of sales, its attractiveness to its employees or its access to its capital (Vogel, 2005).

CSR: Competitive Advantage in Balance

If CSR behavior becomes a competitive advantage that a company would enjoy its positive results if it applies its programs, opinions would discourage competitors from adopting those programs. The companies in trying to achieve this balance would stress on influencing market expectations on social and environmental quality to gain the interest of CSR stakeholders and to ensure reaching its competitive advantage in the market (Bardelli, 2005). According to Mc Williams, the environment competitive situation in the business market depends on price, degree of product differentiation, the existence of entry barriers and substitutable non CSR products (Lanoizelee, 2011). Both companies and stakeholders will be affected by the above factors. Therefore the strong demand for CSR would yield probable economic advantages whereas the low demand for CSR would result in uncertain

economic advantage. If we build upon Porter's analysis of competitive advantage, we follow the line of competitive edge generated by CSR strategy which would only depend on the added value to the community. This added value would be granted by the economic powerful stakeholders in the company as customers, suppliers and investors. Moreover this value is added by many members of the active civil society who defend the values of development and who look to competitive advantage as being derived from intangible resources such as human capital knowledge (Lanoizelee, 2011). The balance between CSR and competitive advantage is reached evenly when there is a positive relationship between CSR and corporate financial performance CFP. This depends on firms and industry characteristics as well as timing of delivery and the relationship between CSR activities and stakeholders' satisfaction. As Hartman points out "doing good doesn't have to be at the expense of doing well" (Hartman, 2011). The perfection of the balance is a far away dream especially in times of uncertainty, economic unrest and environmental changes. Sometimes, stakeholders themselves as customers would cause an imperfection in the balance when you find a discrepancy between a consumer lifestyle and value on one hand and CSR activities on the other hand. Therefore, CSR programs have to go parallel with the competitive intentions of the company in gaining the credibility, the customer satisfaction and trust, adding to the reputation of the brand or the company as well as the consumer loyalty and which will lead to what we call responsible competitiveness (Hartman, 2011).

CSR: Criticism vs. Praise

The CSR concept falls into the trap of criticism and praise when it comes to the judgment of modern businesses that have to achieve competitive advantage while maintaining socially added value to the society. The controversy arises in the way CSR programs are developed and introduced to the society. Within the ethical route of delivering goods and services some companies adopting CSR programs fail to stick to their promises. Researchers identified six areas of controversies as follows:

- The defense of public image: reflecting on whether CSR program yield positively or negatively to the society
- The attraction of investors; relating to whether CSR program will attract the support of investors or not
- Permission to operate: referring to the risks involved with some operations that put CSR programs at negative opinions of stakeholders
- Good public relations: referring to the maneuvering of CSR programs through social networks that can be sometimes twisting
- Engagement through campaigns: some NGOs work on campaigns and induce companies to work on CSR. When the cause finishes, usually it is not repeated and accordingly it loses its sustainability
- Lobbying against legal regulations: the legal framework is sometimes trespassed by some companies to realize the CSR program and covering up illegalities and in this sense it can yield very negative effects

In order to avoid such controversy, firms should adhere to the business codes of conducts developed by the international organizations supervising CSR programs worldwide as OECD (Ilies, 2012).

Moreover, business firms should accept that the best practices of CSR are not universal and that situational factors direct what's best for each community. One of the main critics of CSR was published in the work of (Henderson, 2004) where he emphasized on the fact that CSR can lead to business disasters as investment in some projects defined as social cause can be unfair in yielding profits. In most cases, a company is attracted to be a global savior leaving behind plans of long term efficiency and competitiveness (Henderson, 2004). Some governments are not also helping with modified regulations and there are worldwide calls to strength and empower those entities for the avocation of CSR (Mattera, 2011).

As the reality regarding CSR and CSI (Corporate Social Irresponsibility) is complex and dynamic, several comparative studies were conducted in this sense. CSI would lead to environmental degradation and pollution of ideas. It would exploit the ethical problems into a sense of irresponsibility towards the society. Looking to the profits of the company adopting CSI, one can find profit is achieved at any cost and in unfair manner (Ilies,

2012). On the other hand, CSR would help to correct market inefficiencies and promote ethics. The HR department in the company through a long range of selection and recruitment is the boosting engine towards better CSR project in the community. Moreover, the adherence to the concept positively would promote good intentions within the financial boundary and would minimize risks (Vallaster, 2012). For them the multiple benefits would be the reduction of costs, motivation of employees within the organization, environmental protection values and ethics in enterprises, better management of human resources and meeting clients' needs and diminishing risks. These multiple benefits can only be perceived if CSR resilience is high in the face of external environment shocks. Actually, some studies argued that CSR is at "cross roads" and it can fade away by 2015 if it doesn't undergo radical changes (Harwood, 2011). These studies were in favor of the reinvention of CSR programs in order to include proactivity of good force and willingness to perform a revolution in the socially added value to the society. Resilience approach to CSR reflects the intensity of its programs to withstand stress, shock or change as a result of competing initiatives" (Harwood, 2011).the changes suggested in the society in order to maximize the benefits of CSR include setting new rules for governments, more involvement of NGOs and trade associations, strict measurement against corruption and more involvement of the local cultural in the society to help with the program.

3- CASE STUDY

According to Ortman, Egypt is one of the first countries that come to mind when one thinks of CSR. More than 80 million populations are striving for better life, social justice and structural reforms. Egypt is a country where entrepreneurial economy plays a vital role (Ortman, 2010). Vast business areas would call for help in education, housing, state owned enterprises, NGOs, small business enterprises, social insurance and health services. Government interference and the distrust due to lack of organized rules and regulations, had stifled major venues of CSR in Egypt and distorted the management of their programs. With the dawn of the January 25th revolution, hopes are that the human agency of business entrepreneurs in Egypt would help to alleviate poverty and enhance justice and social welfare within the society. The Egyptian population now is freer to vote, to create, to solve problems, to be more transparent and accountable for their actions which would improve the environment in which we are living. The road map for the enhancement of CSR projects in Egypt was enhanced by some of the multinational companies in the country. Our case study would present the efforts of one of the most renowned multinational enterprise in Egypt PEPSI CO EGYPT to create a comprehensive CSR strategy to yield better results and boost competitive advantage.

PEPSICO EGYPT

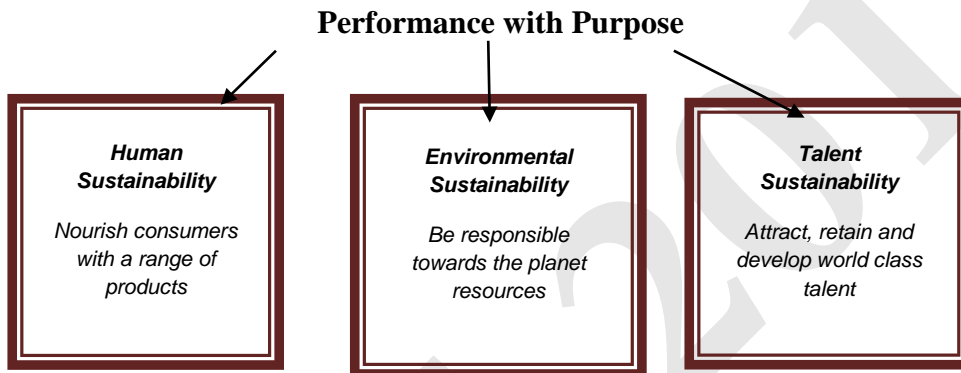
PEPSICO is one of the world largest food and beverage companies, with 2008 annual revenues of more than \$ 43 billion and employs around 198,000 employees worldwide. PEPSI CO has 18 mega brands, each of which delivers retail sale of \$ 1 billion. The brands are enjoyed around the world in more than 200 countries such brands are Pepsi, Mountain Due, Doritos, Chipsy, Aquafina, Frito, Lays snacks, Ruffles and Tropicana Juice, Miranda, 7Up and others as well. For PEPSICO, doing business is not just about making a profit. The company listens to its customers' needs: well treatment of employees, better society services, not harming to the environment and better investment to the human talents. The business of PEPSICO relied on a vibrant society and healthy planet to grow and to meet customers' future needs. The notion of offering better tomorrow than today goes parallel with the responsibility to improve all aspects of the operation process whether socially, economically and environmentally.

PEPSICO EGYPT: CSR Vision

In a world that continues to experience unprecedented economic, environmental and social challenges, PEPSICO Egypt employs corporate social responsibility CSR to help making a difference. The responsibility to improve all aspects of life to create an added social value to the society and to increase the social welfare of its citizens strives

the way to achieve good profit with socially good performance. PEPSICO Egypt is one of a long history of delivering strong financial performance increasing revenues, market share, volume of sales and profits earned per share. This policy is going parallel to the achievement of a competitive advantage among its rivals together with the CSR that is embedded in the management culture of PEPSICO.

The vision of “Performance with Purpose” is the strategy of its corporate Social Responsibility. According to Indra - Nooyi, PEPSICO Chairman and CEO, Performance with purpose is the foundation of every aspect of PEPSICO’s business. The financial achievement as well as the layout of the competitive advantage of the company goes hand in hand with sustainability. The following sections of the case study will review the different aspects of sustainability that PEPSICO invest socially in them in order to achieve its message of delivering good performance.



The commitment of PEPSICO Egypt under the notion of ‘Performance with Purpose’ is to human, environmental and talent sustainability. Human sustainability refers to PEPSICO’s Egypt efforts to nourish consumers with a wide range of products, from treats to healthy eats. Environmental sustainability on the other hand reinforces the commitment of PEPSICO to protect the natural resources of the planet and to reduce any environmental stains on its sides. Finally, the talent sustainability focuses on developing employees in a diverse and inclusive environment to ensure that PEPSICO Egypt is an attractive destination for the world’s best talent.

PEPSICO EGYPTCSR Vision: Human Sustainability

The goal of human sustainability is to make a great progress towards the PEPSICO Egypt’s goal to improve the overall nutritional profile of their portfolio as follows:

- Offering a variety of great tasting food and beverage.
- Reformulate to improve nutritional profile.
- Launch healthier, nutritious food and beverages.
- Act as a responsible company to address global nutrition concerns and encourage healthy life styles through activity.
- The reformulation to improve nutritional profile include removing trans fats, moving to healthier oils, develops and use sugar substitutes, adding whole grains and reduce added sugars.

According to Ms. Sherine Shahine, the CSR, Public Relation , External Communication Manager of PEPSICO Egypt, the slogan that gathers all projects of sustainability is to “**create a better tomorrow for future generations**”, while the objective is to achieve a financial success and to maintain the competitive advantage with a positive imprint on society. Regarding the cornerstone of human sustainability, PEPSICO Egypt is working to develop products that balance cost and nutrition. Moreover, it is trying to solve the global paradox

where more than 1 billion of people are hungry and more than 1 billion are overweight, accordingly they are trying as a team in PEPSICO Egypt to let consumers improve their diet and motivate them to adopt healthier life styles and helping them with the cost. In doing so, PEPSICO Egypt launched a project for renovation of medical units in 10 different governorates that are underserved. The project was launched with the Egyptian cure bank and the Egyptian Ministry of Health.

PEPSICO EGYPT CSR Vision: Human Sustainability: The Egyptian Cure Bank Initiative

PEPSICO Egypt decided to fund the cure bank to improve and renovate the health care in communities near selected PEPSICO EGYPT factories. The Egyptian Cure Bank actually plays an important leadership role in providing medical treatment and improving medical services for underserved children and adults in several governorates. This responsibility arises from endless aspiration to serve the Egyptian people and specifically to improve healthcare in their communities. The plan of work with both the Egyptian Ministry of Health and cure Bank is to renovate the outdated and inadequate status of existing health units and assist in supplementing the training and salaries of medical personnel. These two objectives will be covered through upgrading the medical equipment such as the sonar, X-ray and other important medical devices, adding to providing other essential medical equipment such as surgical utensils and cardiac stents. In addition to enhancing the medical services through providing variety of training courses for doctors and nurses, to be related to supplementing their salaries because of these experienced professional certificates.

PEPSICO EGYPT CSR Vision: Environmental Sustainability

In 2007, PEPSICO Egypt agreed on vigorous companywide methods to help better understand and track the global footprint. The company decided a goal for environmental sustainability to reduce water consumption by 20%, electricity consumption by 20% and fuel consumption by 25% by year 2015. PEPSICO Egypt is considered the first company of its size in their production sector to publicly state long term resource reduction goals. They gained the ISO 14001 for their successful environmental compliance. Therefore, all their individual business in the regions have specific one year and three years conservation goals. These goals go parallel into the performance objectives of their senior leaders just as financial goals. On the contrary, sometimes those socially friendly environmental goals win over financial transactions for PEPSICO Egypt to maintain both the competitive edge and the company's image as Ms. Shahin clarified.

The three major areas of interest of environmental sustainability for PEPSICO Egypt are as follows:

1. Reducing water usage through conservation, reuse and replenishment as PEPSICO Egypt uses inventive techniques, including water recycling for plant maintenance, waste water irrigation and air rising of beverage bottles. The objective is to use proactive working plans to improve water supplies in water scarce communities.
2. Reducing greenhouse gas emissions through energy conservation and use of clean energy sources as PEPSICO Egypt continually improves processes to reduce energy use, through actively engaging in renewable energy projects.
3. Reducing, recycling and reusing packaging and solid waste as PEPSICO Egypt is trying to sustain the Global packaging policy by saving plastic consumption of more than 60 million pounds through manufacturing light weight beverage containers.

The "spillover effect" according to Ms. Shahine, is contagious to other companies in the field which try to apply some related CSR projects for environmental sustainability.

PEPSICO EGYPT CSR Vision: Human Talent Sustainability

PEPSICO Egypt's strength is in its people who continue to deliver exceptional results. PEPSICO is committed to hiring, training and retaining the best people. The accumulation of human capital knowledge in PEPSICO Egypt

is the base of increasing and sustaining the talent for work. The projects that PEPSICO Egypt undergoes to achieve human talent sustainability are: Grass root project and Ambition program.

PEPSICO EGYPT CSR Vision Human Talent Sustainability: Grass Root Project

The aim of the project is the talent scouting inside schools of children to encourage both education and sports. PEPSICO Egypt tried to discover talented football players in 27 governorates in Egypt. It started 2003 and the program will continue until 2017. The pillars of the program stand on providing a career path for such children, through discovering best Egyptian young players and formulating a team in each governorate. Throughout the tournament, PEPSICO Egypt is committed to provide players with the following benefits: Healthy living via healthy meals, transportation and logistical allowances, courts rental, time management workshop, cash prizes for the first three winning teams on the governorate level and on the level of Egypt, mobiles and computer gifts, career advising for those young children and distribution of T-shirts on all participating players covering the 3 stages of school students in Egypt.

The CSR notion behind the Grass Root Project is to help the community within its boundaries and also parallel with giving PEPSI a football competitive edge. The program initiated a set of criteria that ensure good behavioral manners among participants and minimum level of academic performance. The tournament player has to present a proof for a minimum of maintaining academic pass for 3 years and not failing exams during the program. Moreover, a player is required not to engage in any behavioral misconduct during the program course. The socially added value for such children through “Grass Root” program, according to Ms. Shahine, is to promote educational standards, enhancing youth healthy living and empowerment in the community and leveraging the PEPSI talents.

The pillars of CSR intervention lie on the following:

The Grass Root program includes:

- a. Life and educational development pillar to carry out PEPSICO Globe mission towards youth through taking a personal responsibility not only by training and coaching but by implementing and designing a full integrated program for empowering them into their community. The program is a renewed 5 years plan including rotation of different students within their age group.
- b. Mobile computer lab as a rotation mobile lab visits all governorate where tournaments are held twice a year. The objective is to spread computer literacy among all students across all Egypt enlisted in the program. This would encourage e learning and the support of on time access to the program. Moreover, it would help to eradicate problems of technology faced by several schools in poor governorates.
- c. Healthy living enhancement as the program, offers during the trip the service of a mobile clinic facility. This is in order to check health conditions reaching out to all participants who do not usually get proper health care. The mobile clinic is held at the site of every tournament and has several responsibilities as treatment of overall body performance, teeth checkups, eyes, ears, nose and throat checkups as well as pains and injuries.
- d. Youth Empowerment as the program allows for several streams to support workshops along the tournament. These workshops encourage soft skills and future employability. [PEPSICO does this with the cooperation of “Sona’a El Hayah” program of “Ressala” organization. The top ten performers in the tournament receive free gifts and certification at the end of the program to enrich their CVs.
- e. Leveraging the talents of the winners as the Youth ministry and ministry of Health in Egypt honors and rewards the winners with certificates. [PEPSICO Egypt provides the school of the winning team with mobile computer lab and offers free scholarships as wells educational English courses

- programs. The CSR notion here is that the society will be rewarded by those talented people to benefit themselves and their communities to create a role model and a sense of social responsibility.
- f. PEPSICO Egypt volunteer mobilization as the awareness scope is the intervention pillar. It is a cause related project whereby each tournament carries a social, health or environmental cause. So the PEPSICO Egypt volunteers and the players wear T-shirts on which a slogan related to the cause appears. This helped PEPSICO Egypt through many years for fund raising campaigns for many social causes.

PEPSICO EGYPT CSR Vision Human Talent Sustainability: Ambition Program “Tomouh 2007-2012”

The program is designed, in cooperation with the United Nation World Food Program UNWFP”, to support children education, health and welfare in “SOUHAG” governorate in Egypt. The program is designed to empower the youth to provide them with the opportunities they need and deserve to become successful in their lives. The program was initiated 2003 at “the Arab Economic Forum” where Mr. Saad Abdel Latif PEPSICO International, Asia, Middle East and Africa president pledged 1000000 US\$ to promote education in the Arab world. It started mutually in Egypt and Jordan 2007 and aimed to improve school attendance and combat malnutrition among school children in Upper Egypt. PEPSICO Egypt contributed 1.6 million LE. To the program which provided school feeding support to 84 targeted communities based schools in Dar El Salam, Geheina and saqulta districts located in Sohag governorate. This program helped 130000 children and 2600 students. The attendance of the children in those district schools was increased by 90% due to the food distribution during the sessions. The Tomouh program organized trips for students of Sohag governorate to visit PEPSICO Egypt plants of both PEPSI AND CHIPSY and gifts were distributed. Many of those students came to Cairo for their 1st visit. They shared in the manufacturing process as a way of encouragement and they were exposed to the optimum standard used in production. During the program at Sohag governorate, the students attended orientation sessions on the importance of education, nutrition and health. PEPSICO branded bags and caps were distributed at the end of each session to encourage attendance. In June 2011, the “Tomouh” program was sponsored by Chipsy in a new venue for the campaign of “food for education” announcing that Chipsy will cover more than 30 new schools in Sohag and 35 other schools in Upper Egypt through allocating a portion of its sales for 2 months to fund the food for education project. Under an innovative slogan by Chipsy “give them back their childhood, give them back their smiles”, Chipsy launched a big on line donation campaign to give every Egyptian the opportunity to contribute to this valuable cause by simply visiting www.chipsyegypt.com and clicking the yellow box to help needy children to continue their education free of charge. It also launched a video campaign in Fayoum on the 6th of July 2011 and shared it on all channels celebrity figures in Egypt were volunteering in this program to market its components. From a CSR perspective, the indicators for the success of this program were the number of student beneficiaries and their families. An assessment is done every 6 months for the students and monitored as a project every 3 years. The UNESCO accredited the program to develop the children talent and make them upgrade their knowledge. According to Ms. Shahine, PEPSICO Egypt tends and favors to be focused and not to be sporadic. The media helped in the success of PEPSICO Egypt projects especially after the Egyptian revolution January 2011 where there is a change in the media, not centralized and not censored and with more open campaign and strategies. The youth are the decision makers, upgrading the importance of such projects for the community. In an attempt to engage PEPSICO Egypt employees and associates in Tomouh program, the CSR team arranged three school visits in Sohag with the help of 5 volunteers during Ramadan to distribute Ramadan Charity bags on 11th of August, 2011. In September 2012, the CSR team with some of the volunteers from PEPSICO Egypt employees conducted two visits in Bany-Sowaif where they met the kids and spent the day with them. Moreover, there is an attempt from PEPSICO Egypt to engage in Mutual cooperation with some NGOs to extend Tomouh Program to children with disabilities.

PEPSICO EGYPT: CSR Vision and Competitive Strategy Formulation

Working under the umbrella of “Performance for Purpose”, the competitive strategy formulation of CSR in PEPSICO Egypt lies on the following steps:

- 1- Project – Impact Diagnosis:
 - a) Monitoring System
 - b) Assessment of the monitoring tools currently being used
- 2- Recommendations based on research encompasses areas of intervention
- 3- Reporting and evaluation of the project.
- 4- Partnership strategy.
- 5- Communication and public image strategy

The area of researching encompasses the potential stakeholders in the strategy as employees, government, future generations, competitors, business partners, customers, community as shareholders. This allows the pointing out of rooms of intervention following the usual strategic path of what to produce? to whom to produce? Where to produce?

PEPSICO EGYPT: CSR Vision and Competitive Strategy Communication

Regarding communication of the strategy in PEPSICO Egypt, it is usually done through the channels of Public Relations in order to sustain the public image. The focused approach of sustaining CSR through communication lies on the following:

- Talking to the right stakeholders.
- Raising awareness in an innovative and inexpensive way through UNDP ambassadors.
- Attending and organizing events to promote company’s image of CSR.

PEPSICO EGYPT: CSR Vision and Competitive Strategy

CSR strategy in PEPSICO Egypt is a 4 years strategy for developing any project. It focuses on celebrity association and it is a fragmented one encompassing many venues. The strategy focuses on the engagement of employees in CSR community projects and is very responsive to the expectations of both stakeholders and customers’ requests and concerns. Another venue is the communication of their goals, initiative and image building as a company. This communication pattern allows PEPSICO Egypt to tap the markets leader in them and not just the follower. The global initiative report GIR is a tool in this matter whereby stakeholders and customers know about all aspects of the company’s performance. The monitoring and evaluation of the strategy according to Mrs. Shahin is developed through the standards of result based methodology to improve management effectiveness and accountability. It is based on defining outcomes to ensure the success of the strategy ongoing performance monitoring, assessment and integrating lessons learned into future planning and improving accountability based on benchmarking and continuous feedback to improve performance.

The significant achievements according to those monitoring the results in the last 8 years:

- Expansion of healthful product portfolio through innovation
- Improved significantly water, fuels and electricity efficiency
- Saved nearly 5 billion liters of water and 500 million kilowatt hours of energy worldwide in 2007
- Managing more than 13000 children and 2600 students in Suhag governorate on educational and health level through “Tomoooh program”
- Engaging in short term intervention like Floods in Aswan 3 years ago, where there was collaboration between PEPSICO Egypt and “Food Bank” in Egypt to distribute food to the homeless families
- INJAZ program launched to increase “Talent Sustainability”. INJAZ is an already established NGO in the field of education and in collaboration with PEPSICO Egypt, they started to distribute feast clothes

last year and they also have a volunteer group managed by PEPSICO Egypt to teach syllabus and deliver effective education for students in remote poor areas.

- Hand in Hand program in cooperation with Chipsy, aims at recuperating 100 job opportunities for handicapped people through an extension of “Tomoooh program”.
- Launching a campaign of safer roads in Egypt: PEPSICO Egypt bought 3000 cars equipped with the black box of the driver supervision from the head quarter.
- Working on Ramadan “Generosity” Program: with the collaboration of the ‘Food Bank’ in Egypt, they raised from 1 million Short Messages (sms with the word KARAM, which means generosity) from PEPSICO Egypt around 2,140, 000LE to the “Food Bank”.

4- CONCLUSION & RECOMMENDATION

The importance of CSR is to create value for the society through several programs of aid activities, investment in new technology and new products brand awareness facilities, training and customer services. This value creation is the strategic outcome that helps to boost the company’s competitive advantage gaining the positive image reputation and the trust of its stakeholders and thus reflecting on the environment and the community in which it is operating. The idea of relating the business world to the society’s need through CSR projects and the rise of business ethics and value is in vogue and will continue as long as the company succeeds to maintain the sustainability of its competitive edge in the market (Ioannou, 2010). Nowadays leaders of companies committed to CSR must realize that the issue of promoting business ethics is at stake and that they must review and work closely with their investor community in order to achieve strategic positive results of both profitability and commitment. This is achieved by highlighting the short as well as the long term costs and benefits through what many firms call CSR Awareness programs (Ioannou, 2010). This would also include the various stakeholders as investors, buyers, sellers, producers, managers, shareholders, employees, civil society and the government. According to Hristea, the intersection between business ethics and CSR would be realized through balancing economic assets and durable competitive advantage in the market on one hand and managing the social capital emphasizing goodwill and social welfare programs on the other hand (Hristea, 2011). Finally, the study of the relationship between competition and CSR highlights the idea that the business corporate communication plan is a device behind encouraging economic operators to use CSR strategies. A good communication is crucial for the delivery of CSR community services and creates collaborative action for the support of such delivery. The communication with the desired or intended segment of the public would indicate the ‘problem recognition, constraint recognition, level of involvement of the society’, adding to processing the information needed for realizing CSR goal (Byrd, 2009). The relationship in this sense between plans of media communication specially the social one and the achievement of CSR goal will be mutual benefit to both the society and the company.

As recommendations to upholding competitive advantage through endorsing corporate social responsibility:

- There should be laws to regulate CSR activities. In India, there is a law that all companies abide by and execute it within their yearly plan. However in Egypt, it all depends on the cause of the company and while so many international companies located in Egypt execute CSR as a part of their plan, the public and private sectors organizations don’t yet. For public organizations, they have to wait for the approval and allocation of budget for CSR from ministry of finance which seldom happens. Accordingly the companies either public or private cannot change policies alone but they need the government to regulate CSR through set of laws and regulations.
- Avoid the over expectations regarding the return of CSR projects as it is not a magic wand to resolve all the community problems which is faced by corruption, red tape, and the lack of transparency.
- CSR activities should be proactive to mitigate risk and it should be set on the long term to ensure its sustainability and strategic intentions.

- Lots of NGOs work under the framework of the charity concept not as CSR activities. Accordingly, there should be more mobilization of volunteers to encourage CSR activities and there should be more coordination and organization of CSR activities to avoid duplication of CSR activities to enlarge the scope of benefits in the society.

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4th International Conference on New Horizons in Education

Usability level of a university web site

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Abstract

This study aims to determine the usability level of University web site on the Internet environment respect with “learnability, effectiveness, efficiency and satisfaction”. In the study, which has one-shot case design, while observation method was used to collect data about effectiveness, efficiency and learnability. System Usability Scale with 10 questions was used to collect data about satisfaction. During the procedures, the participants were required to complete 11 tasks, which have been defined by the researcher before. The research results, completed by the participation of 8 University students and secondary school students, show that the tasks’ average completion time is 54,50 seconds and average success score is 80. In addition, almost 85 % of the participants indicated that it was easy to use the web site. All the participants show a positive attitude and belief that this site helps the users about finding information about university. As a result, all participants with a higher success and satisfaction use the University web site. The paper also includes some suggestions for incomplete or completed with difficulty tasks to make it better.

Keywords: human computer interaction, usability, effectiveness, efficiency, satisfaction

1. INTRODUCTION

The usage of information and communication technologies increases according to speed of improvements in the production of the technologies. As well as increase in the kind of devices or technologies, the number of persons using these technologies increases in the community. Meanwhile, governments supports using e-governments applications in order to save time and budget. In the same way, some institutions, universities for example, pay attention to design usable web sites to inform their users. Not only serving to its students, academics and employees, web site of university also gives services to other institutions, and graduates. Therefore, too many people around visit these web sites. Hence the web site of any university should be usable to satisfy the needs of its users. In this case, what does usable mean? And what does usable web site mean?

According to Rubin and Chisnell (2008), any system or product can be accepted as usable if any user can find or achieve what s/he wants without having problems or without requiring any help. How can any system be stated useful? To do this, usability testing that investigates some usability aspects like efficiency, effectiveness, satisfaction, learnability (Nielsen, 2012; Çağiltay, 2011; Sengel, 2013).

In general, there are four kinds of methods could be used to test usability of any product, system or web site. Methods of usability testing can be categorized into model/metrics based, inquiry, inspection and testing. The types of persons attending in model/metrics based and inspection categories include evaluators and/or scales (Zhang, 2007). These types of methods are called as expert-based approach. These types of methods are also

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called as heuristic evaluation. However, methods in which representative users attend in inquiry and testing are also called as user-based approach methods. These methods are also called as inquiry-based evaluation.

The inquiry-based evaluations (the user-based approaches) are carried out with more than one representative user who tries to accomplish some tasks in an appropriate medium. The most convincing, reliable and valid data could be collected in user-based methods (Akıncı & Çağiltay, 2005; Rubin & Chisnell 2008; Andrews, 2012; Hava, 2012). The most persuasive, reliable and valid data could be collected in usability testing. In usability testing, kind of interaction of user with interface, performance of user, time spent to accomplish the tasks and the satisfaction of users while using the system are some of the qualitative and quantitative data could be collected and be analysed. Almost all aspects of usability, effectiveness, learnability, efficiency, errors and satisfaction, could be measured and analysed in usability testing (Nielsen, 2012; Şengel, 2013).

Usability testing methods are applied in order to evaluate the system with respect to real users' view, to develop more friendly designed systems, and to improve the satisfaction levels of users. During usability testing, different types of problems could be observed. Then with the light of these findings, more usable and more users friendly web sites or programs could be produced (Nielsen, 2012; Rubin & Chisnell, 2008).

Krug (2006) and Nielsen (2012) indicated that the web site of any institution should be obvious and must be understandable to anyone. When one look at the web site for the first time, any users could define relations and their properties without any hesitate. If one is being lost easily in the site or if it takes time to find what user is looking for, s/he may not want to use it again.

In this paper, one scale of a big project that investigates the usability levels of top universities' web pages in Turkey. The purpose of this project is to evaluate the web site of Sakarya University web site according to usability testing criterions with respect to users point, and to find out prospective problems in design of the web pages.

2. METHOD

In this study case study design was used. Usability testing method was used to observe prospective problems as users visit the web site of Sakarya University. In this method, both qualitative and quantitative data could be collected. 11 tasks were introduced to the enthusiastic participants in order to accomplish desired issues related with web site.

2.1. Instruments and context

In this study, 11 tasks were given to participants. Tasks were selected from the results of a study done by Şengel & Öncü (2010). They applied a survey to 445 students to find out how they use web sites of a university. As well as university students, academicians, employees, staffs, and even commercial companies follow the announcements and other activities through web site. Because of this, some of the tasks were related with students, and some were related with staff and some were related with outsiders. Before participants used the site, a survey with four questions was applied to collect demographic properties of users. While each participant using the site individually in a silent place, the interaction done throughout the test were captured by a program called Morae. Morae was preferred to collect data. Because it is easy to install and it requires any computer with cam recorder. In addition, evaluators could easily collect data related with usability aspects and create graphs and tables. As well as creating its own presentation format, it is applicable to transform results to MS Office editing programs easily.

The participants were asked to complete all the tasks. Participants were asked to think aloud while trying to accomplish given task. During the test, the Morae records screen, face of participant and sound at the same time. After participants notified that they completed the given task, a small survey (with three questions) with five-likert type was applied by Morae program in order to endorse the efficiency and effectiveness of the visited site. At the

end of test, a System Usability Scale (SUS) developed by Brook (1996) with 10 questions was applied in order to define satisfaction of users in using web site. It was stated that users were accepted as satisfied with the system if the score of SUS was over 70.

2.2. Participants

Visitors of universities web site is generally students studying at university. But, at the same time different range of users might be a possible user. Because of these reasons, most of the participants (6 participants) were selected from university students studying at Uludag University in different departments. One participant was working as an accountant and one electrical technician. All of them had been using computer and Internet in their daily life's as shown in Table 1.

Table 1. Properties of participants

	Profession	Daily Internet Usage	Weekly computer usage
Participant 1	Student	1-3 hours	11-25 hours
Participant 2	Student	9-12 hours	26+ hours
Participant 3	Electrical technician	<1 hour	0-10 hours
Participant 4	Student	>12 hours	26+ hours
Participant 5	Accountant	1-3 hours	11-25 hours
Participant 6	Student	4-8 hours	26+ hours
Participant 7	Student	4-8 hours	26+ hours
Participant 8	Student	4-8 hours	26+ hours

3. RESULTS

3.1. Efficiency

In this study, efficiency, effectiveness and satisfaction aspects of usability were tested. Efficiency is the measure of the resources that must be spent in order to achieve desired objectives of the system. These resources could be time spent. Table 2 shows the total time spent for each participant to complete the whole test and time spent to find out desired task.

Minimum time spent to complete whole tasks was 653,4 seconds and maximum time was 3294 seconds and average time for full test was approximately 1600 seconds. The long time to complete tasks for participants showed that the web site had a low efficiency level. When each task was investigated separately, the longest time spent was for the Task – 9 (208 sec), then Task – 5 and Task - 11 (each 196 sec). In Task – 9, participants were asked to find a form to apply scientific research project center as if s/he was an academician. During tests, 2 participants find out desired task with difficulty and 6 of them could not completed. One of the reasons for long time was that there were too many button and each were very closed to each other. Related page had to be redesigned.

Table 2. Time spent through out the usability test in seconds

Task Time	Total Time	Tasks										
		T1	T2	T3	T4	T5	T6	T7	T8	T8	T10	T11
Participant 1	1297,2	29,4	111	138	33	173,4	103,8	141	34,2	91,8	86,4	114,6
Participant 2	1365	121,2	123	82,2	21	190,8	119,4	102	49,2	187,2	55,8	175,8
Participant 3	1351,2	27,6	76,2	164,4	62,4	193,2	151,2	162,6	90	115,2	129	46,8
Participant 4	1113	46,2	75	120	19,8	31,8	108	161,4	39,6	157,2	62,4	69,6
Participant 5	2240,4	33	46,2	153,6	29,4	314,4	174	60,6	32,4	330,6	307,2	608,4
Participant 6	1928,4	39,6	151,2	120,6	41,4	110,4	121,8	292,2	127,8	375,6	192	184,8
Participant 7	1757,4	67,8	252,6	87	73,2	326,4	138,6	75	89,4	192,6	238,2	36
Participant 8	1860,6	57,6	59,4	294	121,8	227,4	61,8	90	54	217,2	165,6	334,8
Min	653,4	27,6	46,2	82,2	19,8	31,8	61,8	60,6	32,4	91,8	55,8	36
Max	3294	121,2	252,6	294	121,8	326,4	174	292,2	127,8	375,6	307,2	608,4
Average	1614,6	52,8	111,6	145,2	50,4	196,2	122,4	135,6	64,8	208,2	154,8	196,2

The time required to find out monthly activities was approximately 50, 4 seconds. It was the simplest task to be completed. It was an easy task because the activities were listed in home page. All participants completed the task with ease.

3.2. Effectiveness

Effectiveness is the level of comprehensiveness of the given task. It shows how much a user performs to achieve the purpose. If the task given to a participant is to find contact information any person in any company from a web site, then effectiveness is finding true information. Effectiveness could be measured with different methods. It might be the percentages of succeed persons attended to usability testing. One way to measure effectiveness might be the number of completed task in a specified time interval. Number of errors done till achieving the desired tasks, average accuracy of completed tasks are other types of measurement to be collected in order to find out the level of effectiveness in usability (Çağiltay, 2011; Sengel, 2013).

Fig 1 represents the average error rate for each task. Maximum errors were done in looking for Erasmus web site or any information on that page. They could not completed because, the required information was not planed to announce in the site. However, the information to be found is important for students. For task – 4 (finding monthly activities) was completed without doing any error while participants were searching as they surf.

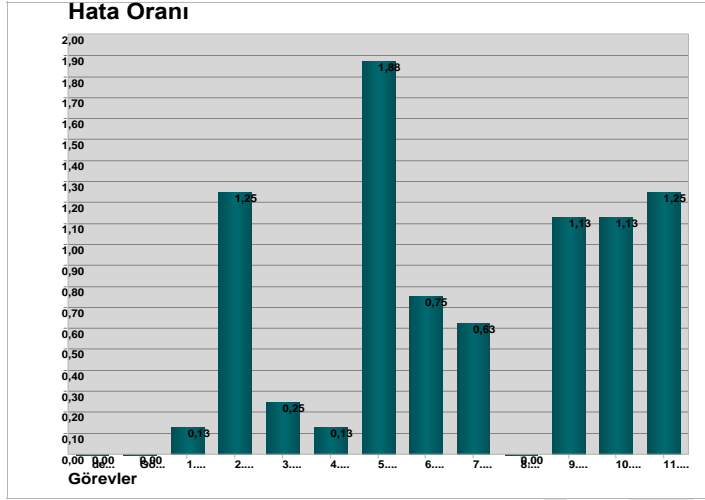


Fig. 1. Error rates

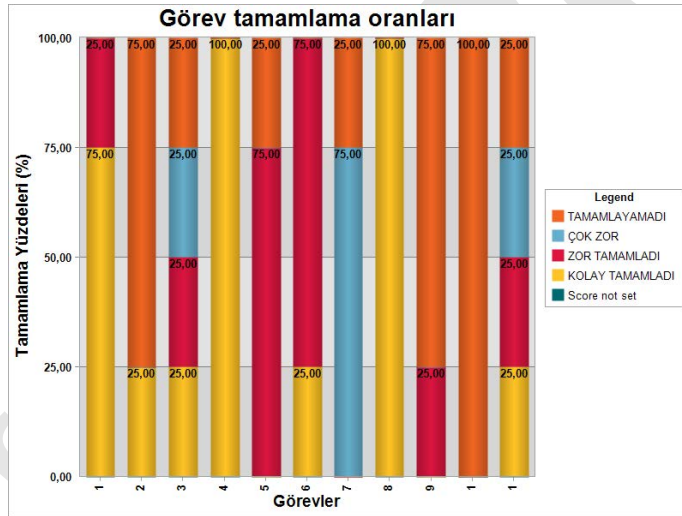


Fig. 2. Success rates

The error rate was high in many tasks from the web site. It shows that the effectiveness of the site was low. This affects the usability of the site. Another method to measure effectiveness of the web site is success rate of task to be completed. As shown in Fig.2, there were some tasks were easily completed (Tasks 4-8). However, some tasks were not completed (Task-10). In this task, the participants were asked to find a phone number to make an appointment to one polyclinics of the university hospital.

In some cases, the task was completed but it was too difficult for participants to accomplish. The reason for this was that links used in the web site were not realized as clickable. Only ones mouse was over clickable

region, shape of mouse turned to clickable. This made users to think about whether the text or figures were clickable or not.

When users were lost ways in the site as trying to complete the given task, they will look at any link to go to the beginning, the home page. But the same problem exists here. There was no written home page link. Link to home page was given to logo of the university

3.3. Satisfaction

In this study, the System Usability Scale, developed by Brook (1996), was used to measure another usability attribute called as satisfaction. SUS composed of 10 questions with both positive and negative statements. It was stated that users were accepted as satisfied with the system if the score of SUS was over 70. If it is between 65- and 70, the system is accepted as medium satisfaction. The SUS score for this study was calculated as 54,06. The satisfaction rate of Sakarya University was found to be lower than average satisfaction.

4. CONCLUSION

The purpose of this project is to evaluate the web site of Sakarya University web site according to usability testing criterions with respect to users point, and to find out prospective problems in design of the web pages. When the results of usability aspect's analyses were investigated, the usability level of the site was found to be low in efficiency, effectiveness and satisfaction criteria.

It is clear that participants had some problems in using the site because of design problems and context problems. Some navigation menus were not identified clearly. Users could not had understood which text was menu and which one was text. In order to increase the usability level of this site rollover property of links and menus should be redesigned. In addition to these, point size of text could be enlarged. Color of text and color of background were almost similar. This made difficult to read text. To increase the readiness level, contrast colors should be used.

When someone is surfing inside a specific web site, s/he might lose her/hisself. In such cases, persons will look after a way to go to starting point or someone to ask. The site contains search box. But, it was not clear that it would be used for searching. "Search" button had to be embedded next to search box as Krug (2006) stated.

There are some topics (e.g., academic calander, daily meal list, and facilities like Erasmus) that are generally preferred by students. These topics had to be achieved without detail searching. Because of this, links to these topics should be placed on main page or main navigation menus.

As stated before, not only students studying in these do use universities' web sites, public and commercial institutions are also searching in these sites. In order to server better, some topics related with their needs (e.g. auctions and procurement) should be included.

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4th International Conference on New Horizons in Education

Use of the semantics of typography in architectural design education

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Abstract

Visual representation of architectural products and processes has consistently attracted the interest of design researchers and educators. Composing these visual materials into a striking and harmonious presentation is a creative design problem itself. This study describes a Basic Design Studio exercise that explores the boundaries of practice in representing visual material through the semantics of typography. Using only typography, students rephrased a 'transparent' scene of the built environment they themselves photographed. A subsequent analysis revealed that the exercise was effective in transposing the semantics of the selected visual using typography.

Keywords: architectural presentation; typography; architectural education; basic design education

1. Introduction

Architectural design education is based on design studio courses. Design studios require an environment that fosters creativity and experiential learning. The main objective of design studios is to give the students required skills for creative problem solving and critical thinking. Studio participants interact with facilitators as well as other students throughout the design process which improves their communication skills and group working capabilities. Schön (1985) describes the architectural studio as a prototype of 'education for artistry and problem-setting'. The design studio environment is a place for students to learn both about designing and about learning to design (Schön 1985).

Basic Design is a course in which Schön's description of the design studio environment holds. The course broadly encompasses fundamentals of design theory in general, as well as the creativity process in particular. In addition to the wide range of theoretical and methodological issues of design, architectural presentation theory is also covered.

Architectural presentation that engages with visuals of the final product as well as the design process has always been of interest to design researchers and educators. The visuals of the proposed final product are usually structured as models, sketches, 3D computer generated images, hand drawn perspectives, schemas, diagrams, project reports, and computer animated videos. How to compose these visual materials into an eye-catching and harmonious presentation is a creative design problem for the designer.

Most institutions providing architectural education teach architectural presentation techniques in their curriculum in a separate course or as a subject of a related course. These courses usually cover theoretical topics of graphic design basics such as, the concept of layout, typography, and communication fundamentals. The theory based teaching approach may or may not result in students successfully gaining solid presentation skills. Nonetheless, the process of designing a presentation is a very promising and entertaining way for students to

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learn how to create and design. Although often omitted in architectural education, typography has great potential as a practical tool for teaching a number of desired presentation and design skills.

Harkins (2010) provides a succinct description of typography as “the art or craft of arranging letters and words.” He elaborates; *‘typography also allows for the arrangement of letters and words (along with other visual matter) to be reassembled and replicated as few or as many times as is necessitated by the demands of what is to be communicated (the content)’*. (Harkins 2010, p.14)

Although text is a meaningful entity by itself, that meaning can change in the way its pieces are combined and composed. In other words, the meaning of text is dependent on how textual material is structured. The semantic value of text in architectural presentation cannot be underestimated. However, the semantics of the textual material itself; in this case the semantics of letters and the typographic characters usually slips designers’ minds. Letters actually have a subject matter of their own and this assumption might have a dramatic educational potential in terms of understanding the process of design. Cullen (2012) defines typography as a process, and a sophisticated craft, making language visible. Designers form language with type, and consequently words gain life and power. Typography has semantic and aesthetic functions. Type that serves both roles simultaneously can be considered successful (Cullen, 2012, p.12).

The Basic Design Studio considers text and typography as a vital component for representing ideas and the design product itself. Additionally, letters, typographic characters, and typography are potential educational tools in terms of understanding the process of design and creativity. Leeuwen (2006) suggests that typography can be interpreted as a semiotic mode that is systematic, and multimodal. Therefore, typography is not just textual, but possesses ideational and interpersonal meaning (Leeuwen 2006). Emphasizing multimodality, Nørgaard (2009) identifies a restricted focus on word-meaning in literary criticism that ignores the semiotic potential of typography. Thus, the authors suggest that typography and its material can be instrumental in translating and visually rephrasing images such as photos of the built environment and abstract compositions. A design exercise that utilizes the multimodal characteristics of typography is described below.

2. Design Studio Project: ‘Expression of Transparency in a Typographic Poster’

This paper describes a studio project that aims to use typography and text as a tool for translating and rephrasing photographs of the built environment. 71 students participated in the project within the scope of Basic Design 2 class in the spring semester of 2012-2013 academic year. Students were asked to photograph ‘transparent’ scenes of the city, and then to visually rephrase these photos by using only typographic materials in a poster. Student presentations were documented on video as they presented their work and received constructive critique from facilitators and fellow students. Subsequently, these videos were transcribed and discussed by the facilitators.

The “Transparent / Typographic Poster” project was completed in 3-weeks in a design studio medium. The study was carried out as a group work and the groups were formed randomly by the facilitators with the inclusion of 2 or 3 students in each group. In total, 25 groups produced 25 posters. The final work was printed and also submitted on a CD containing the artwork.

2.1. Studio 1

The “Transparent / Typographic Poster” project was carried out as a continuation of, and supplementary to the ‘Transparent Model’ study. Therefore, it would be appropriate to describe this study first.

In the “Transparent Model” study, the groups were asked to form a model of a ‘transparent’ design using the concept of ‘lines in space’. The materials were wires, threads, boards and fabrics. The study was carried out in the studio environment. During the exercise, the instructors who acted as facilitators interacted with the groups

about their ideas. The studies were completed and evaluated during the same day. The evaluation involved exchange of views by all the participants and facilitators, critiquing each other's work.

At the end of the studio, students were asked to prepare a digital presentation for the next studio, explaining the concept of 'transparency'. They were also asked to take 10 photos of the built environment representing the concept of transparency, and bring A3 size printouts to the following studio. These photographs were to be used for the "Transparent / Typographic Poster" project.

2.2. Studio 2

The second studio of the project began with presentations of the concept of 'transparency'. After the completion of group presentations, participants and facilitators discussed the photos in terms of the concept of transparency. Photos that would be used during the next assignment were identified. Key criteria considered during the identification of photos were that they had to provide a link to human life and that they had to be original. Particular attention was given to select dissimilar photos for each one of the groups.

Following the identification of photos, the study was explicated to the participants. Within the scope of the "Transparent / Typographical Poster" project, participants were asked to: (1) draw sketches on the selected photo and simplify the photo using lines, (2) highlight the parts they thought were transparent, (3) place a second layer of sketch paper on the initial sketch, and to envisage how this highlighted new sketch could be expressed with typographical characters. During this expression, each group was asked to find a keyword that suited the transparency they observed in their own photos, and to use this word in their posters once or more than once in an altered color. Group members would agree on the color of this keyword.

After explaining the study, groups were allowed 45 minutes to discuss the design and prepare their first sketches in studio environment. Meanwhile, studio facilitators walked through the groups, listened to their ideas, and provided tips. At the end of the 45-minute period, initial sketches were posted. Class discussions were held, and the sketches were critiqued by the instructors.

Following these critiques, students were allowed to continue working on their designs. They were then instructed to complete their projects by the next studio by using typographical characters of varying nature, which they would cut out from printed materials such as newspapers and magazines.

2.3. Studio 3

The third studio of the "Transparent / Typographical Poster" project focused on evaluations. Photos selected by the groups, initial sketches prepared in the second week, and the final version of the project prepared using the cut and paste method were all posted together, and were subsequently discussed by both the facilitators and participants. The discussions focused on both the strong and weak aspects of the project. Distinctive features of typographic characters that were discussed were weight, expansion, slope, curvature, connectivity, orientation and regularity. Care was taken during evaluations that the latest version of the study involved hints of human life as in the selected photos, and that the typographical characters used were prominent in their color, size, pattern, etc. to give the intended impression.

Participants were asked to turn in a CD containing their initial sketches, the project itself, the selected photos, and a report explaining their project.

3. Student Work

The work of three different student groups are presented and discussed below

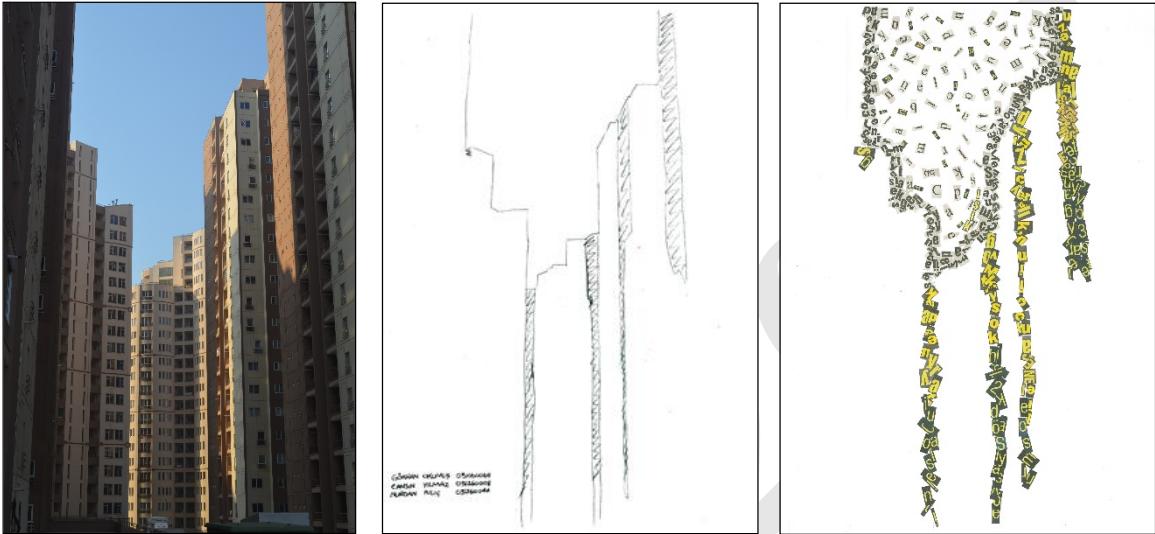


Fig. 1. (a) Photo taken by the students; (b) sketch (c) typography work

The photo used for the project is of a multi-story public housing site. The reason for selecting it was that the diffusion of light was hindered because the buildings were very high and close to each other (Figure 1.a).

In their sketch, the participants expressed the contours of the buildings distinctly, and identified solid and void areas (Figure 1.b). Next, they expressed the solid areas with large, dark, dominating typographical characters and the areas receiving sunshine with smaller, yellow and homogenous characters. Following the critiques they received during the initial evaluation, the students prepared an inverse of their first sketch. In this alternative work, the areas that were solid were left blank, the sky was represented by homogeneously distributing small and light-colored typographical characters, and the reflections of the sun on the buildings were expressed with larger, yellow-colored and dense-textured typographical characters (Figure 1.c).



Fig. 2. (a) Photo taken by the students; (b) sketch (c) typography work

The photo used in the project displays the sunshades on the facade of an architectural school of a newly opened university (Figure 2.a). At the sketch phase, participants expressed the sunshades with spread out thin lines considering the transparent nature of the colored design elements, and the non-transparent parts of the mass with dark, thick lines (Figure 2.b). Taking into consideration the critique they received participants expressed light with small yellow typographical characters, and solid areas they had previously expressed with thick lines, with dark, thick typographical characters (Figure 2.c).

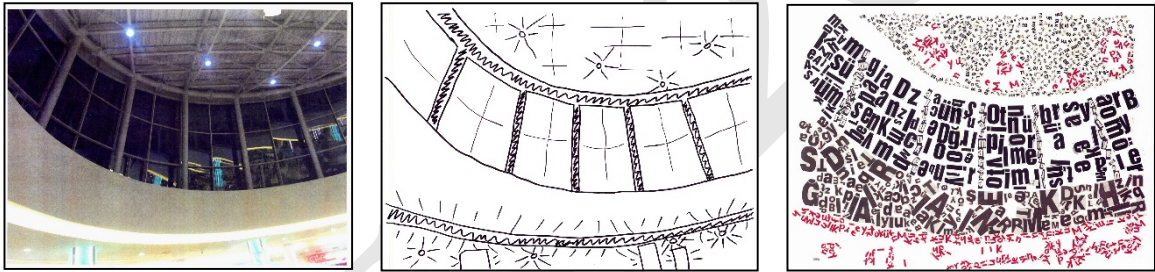


Fig. 3. (a) Photo taken by the students; (b) sketch (c) typography work

The photo used in the project displays the skylight of a shopping mall (Figure 3.a). The reason for selecting this photo was that since it was taken at night, the external lighting and internal lighting created a different impression than the customary impression of transparency.

At the sketch phase, participants traced the contours of indoor spaces and made the light fittings that illuminate the interiors more distinct (Figure 3.b). In the final part of the project, the students expressed the window openings with dark thick typographical characters, and the areas illuminated by artificial lighting equipment with small dense red characters (Figure 3.c).

4. Conclusion

The products of this design exercise reveal that architecture students are able to transpose the semantics of a visual, in this case one of the built environment, by using typography and its multimodal characteristics. Hausmann & Cullars (1998) contend that the design of typography, being artificial and not naturalistic in form,

requires a certain kind of structural perception. It can be further argued that, architecture students are able to read into the logical and predetermined characteristics of typography, utilizing it to convey meaningful ideation.

Type not only carries information, but also elicits emotion (Cullen, 2012, p.12). Using the semantics of typography and its characters in architectural education, students are able to see, read, and visually rephrase their environment not only through colors, materials, texture, size, and shape as they are accustomed to, but also through letters and words.

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Using facebook for learning: a case study on the perception of students in higher education

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Abstract

Facebook is essentially a successful online social network site, in which individuals can share information; the company was founded in 2004 by Mark Zuckerberg, Dustin Moskovitz and Chris Hughes as a way to support the communication of Harvard University. This network was successful used within the Harvard community, and then was quickly spread out to other institutions. Site was opened to the public in 2006. Nine years later, when the company was established and it became into the most popular social network in the world, more and more users are being added every day, coming to already be millions around the world, including students in higher education. This paper shows the results of a study conducted in one a Mexican University, in order to explore the potential benefits that might have this social network in the learning process. Data were obtained by the survey was analyzed and commented upon using the SPSS program with the percentage, frequency, and mean statistical analysis techniques. The results indicated that students will benefit from this interaction tool. The potential benefits of Facebook for students are not only limited to the improvement of learning process used as a communication and a interaction tool, but also as a tool useful to help students in their professional development.

Keywords: perseption, education, student interaction, learning porcess, facebook

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In this global world the digital era is very dynamic; students are more immersed in the technologies (i.e. Facebook, twitter, space). Facebook is essentially a successful online social network site, in which individuals can share information. The company was founded in 2004 by Mark Zuckerberg, Dustin Moskovitz and Chri Hughes in Harvard University. At the beginning this social network was successfully used within the Harvard community, but quickly spread to other institutions and finally the site was opened to the general public in 2006. Facebook provides members with a platform to share their stories, pictures, music, and common interests. Users can create individual profiles and can also designate other users as friends, send private messages and join groups. Facebook is used not only for social networking, but also for business and educational objectives. Originally founded in the U.S. Facebook is expanding worldwide and becoming one of the top social networks in the world, reaching over than one billion active users around the world Facebook Inc. (2012), Surveys of undergraduate students in the United States showed that over 90 % of them use Facebook Ellison (et al. 2007); view focuses on the use of Facebook by students, present a detailed the time the students spend on Facebook in a day to educational issues. A social networking site is an online site that presents a platform used by individuals; it focuses on building and reflecting academic's relations in accordance with interests and/or activities of students.

This paper aims to explore the perception of students in University about whether it would be appropriate to use Facebook for the teaching-learning process; and the actual use by teachers for educational purposes]. The reviewed studies have been categorized into three sections: (1) Descriptive statistics – Facebook for educational purposes (2) Pedagogical uses by teachers, (3) Perception of students about Facebook as a learning tool. Facebook also presents opportunities for members to organize themselves into groups in relation professional affiliations, which might include, submission of ads, class schedules, application of tests, submit work, upload presentations, set discussion rooms, chats, and messenger among students.

2 Literature Review

2.1 Facebook

Facebook can have several uses: to maintain contact with a group of students of the same course; to develop a network with others students; to engage in communication with the teacher and with former colleagues, to meet students with similar interests, and share all types of information. The acknowledgement of a student's use of Facebook is of crucial importance for the academic community, as well as for the teacher and students, since this application could have a large impact on teaching-learning dynamics. As stated by Mazer, Murphy and Simonds, (2007); Tuncay & Uzunboylu, (2010) the use of Facebook has a great impact on the motivation of students to turn, effective learning and the climate in the classroom.

2.2 Facebook in higher education

Why we think that Facebook can be learning tool for both teachers and students who are engaged in their studies of higher education?, the answer is that they can create groups based on common interests and have information fast and updated. According to figures provided by Facebook indicating that 30% of users are younger than 30 years, we can conclude that it could be the network of choice among students of universities. Stutzman (2006) said that 90% of the students in their study indicated the use of Facebook. We also think that other means of communication which are email and courses online have become obsolete, but Facebook tool for now is the most widely used, you may need sense to use Facebook as a tool of teaching - learning because students rather than teachers are already actively participating opening groups and sharing online information related to courses that you are taking at the level of higher education. There have been studies about the use of Facebook -[by] teachers. Gross and Shopping (2005) reported that only 1.5% of the population of one faculty at a University where the study was done used Facebook. Maybe, if it motivates teachers to use it, Facebook can become an opportunity for interaction and communication with students.

According to Bugeja (2006), Facebook affects all levels of the academy and academic environments (Villaino 2007); opening wide and exciting new worlds of learning for educators and students Couros (2008). Students can create and join group's base on interests, and can connect to others through a range of channels.. It has also been used for information, knowledge and document sharing trough the built-in applications (Mack et al. 2007; Cho and Lee, 2008). It also has the potential to be used for educational applications (Boon and Sinclair, 2009). Facebook can also become a valuable resource to support students educational communication and collaborations with faculty Roblyer et al., (2010), which can provide that a different model of online tools can be used in educational contexts. Mazman and Usluel (2010) are aimed at designing a structural model explaining how users could use Facebook for educational purposes. They found that the use of Facebook as an educational tool could be explained by the effects of the user, along with the adoption of processes of Facebook. Finally, (McCarthy, 2010) discusses integrating physical and virtual learning environments to improve the experiences of students in first year. With an emphasis on the use of social networks to support learning and teaching in higher education, students were drawn into a university culture of social and academic interaction between peers. We believe that Facebook can positively affect classroom practices and student participation.

2.3. The perception of students about in the learning process

The digital divide is now lower and students use more computing resources for communication either personal as well as for support for education. According to research, Facebook contributes to an easier flow of communication between teachers and students and could enhance learning and this could improve teaching – learning process. For instance Berg et.al, (2007) describes how one university used Facebook as a means to build better relationships with its students and staff. O'Hanlon (2007) describes how educators engage with an inform

students via Facebook, while Sturgeon and Walker (2009) report that some of the most effective faculty members are those who create informal relationships with their students via Facebook. Facebook provides opportunities for students to communication in new ways, but the students believe that the teachers are not updated in the tool. Another area of concern is friending students on Facebook (Lipka, 2007; Young, 2009). The convention seems to be that it is less acceptable for professors to invite students to become friends than the other way around. Students are preoccupied by this situation.

2.4. The aim of the research

The aim of this study was to investigate the Facebook usage of students and also to find out which Facebook tools can be used for of learning. The study attempted to find answers to the following questions.

1. What are the Facebook usage habits of student's hours/day/places?
2. What are the most preferred Facebook tools usage habits of students?
3. If the teacher use Facebook for teaching-learning?
4. Which is la perception of students about in the learning process?

3. Method

3.1 Sampling

The present study used a sample of higher education students enrolled in management 35.9 % (128), counter public 27.5% (98), international business 18.5% and information technologies 15.7 % (56) and of carrier other 2.5% (9) courses at public university located in the North part of the Mexico. The sample was decided by convenience because undergraduate students are the primary users of social networking sites; we intentionally recruited undergraduate students to complete our survey.

3.2 Instruments

The instrument was the implementation of a survey and consisted of two sections. The questions included at the survey were also built from literature review They selected 15 questions that were grouped into two sections: first section, demographic characteristics of students and also length of time spent in Facebook were collected. The second section consisted of items related to perceptions of students about using Facebook for learning. Each item was measured on a five-point Likert Scale (5 - Strongly agree, 4 - Agree, 3 - Not sure, 2 -Disagree, 1 – Strongly disagree). Some of the questions were negatively worded and subsequently recoded so that after being recoded, higher subscale total scores indicated more comfort(less anxiety) with computer technology, and/or more enjoyment and higher perceived usefulness of computer technology.

3.3 Data Analysis

The students were contacted through their personal email accounts and link containing the survey was sent to them. A following e-mail was sent as a reminder five days after the first e-mail to some of the elements surveyed

that hadn't answered. A total of 357 students completed the survey. The study was conducted during March-July 2013. The data was downloaded as an SPSS file and analyzed using SPSS Statistics Version 21. Descriptive statistics were used to interpret the data.

4. Results & Discussion

4.1 Descriptive statistics – Facebook for educational purposes

4.1.1. Demographics

Forty-one percent of the participants were male and the fifty-nine female. The mean age of the participants was 20. The age of participants ranged from 17 to 44, though 91% were between 18 and 23 years old.

4.1.2. Use of electronic devices

According to figure 1, and in order to achieve the proposed aim, first, students are asked about their use of electronic devices for access to the Facebook. Mobile phone (61.3%), laptops (35.0 %) or personal computers-home (28.9%) are the more used devices.

Table1. Use of electronic devices

Electronic devices	Frequency	%
Mobile pone	219	61.3
University computer	23	6.4
Home computer	103	28.9
Laptop	125	35
Other	19	5.3
Total	357	100

4.1.3. Using Facebook

Regarding the day of week in which students access Facebook, data revealed one high point (table 2). The day that more used the Facebook was monday (65.5 %) followed by wednesday (48.5%).

Table 2. Use of Facebook per day

Day	Frequency	%
Monday	234	65.5
Tuesday	158	44.3
Wednesday	173	48.5
Thursday	164	45.9
Friday	146	40.9
Saturday	77	21.6
Sunday	110	30.8
Total	357	100

4.1.4 Time spent for educational purposes

In table 3, a rather high percentage (32.8%) of students used Facebook for educational purposes (between 30 min and -1hr).

Table 3. Time spent for educational purposes

	Frequency	Percentage
Valid	8	2.2
1hr. to 2 hrs.	89	24.9
2 hrs to 4 hrs.	50	14
30 min to 1 hour.	117	32.8
4 hrs 8 hrs.	8	2.2
more than 8 hrs.	1	0.3
less than 30 min.	84	23.5
Total	357	100

4.1.5. When do you Access Facebook?

Table 4. Time spent for educational purposes

Valid	Frequency	Percentage
From 06:00 AM to 12:00 PM	70	19.6
12:01 PM to 06:00 PM	134	37.5
06:01 PM to 12:00 AM	170	47.6
12:01 AM to 05:59 AM	16	4.5

The majority of respondents, approximately 47.6%, use Facebook between 06:01 PM to 12:00 AM and use it daily for a relatively short period of time (23.5 used less than 30 min daily and 32.8% between 30 minutes to one hour at the most).

5. Results and discussions

Table 5 below shows in a descriptive way the results we obtained for each of the aspect we try to evaluate. As we have already mentioned above, we are not dealing with a validated methodological construct, but with a

qualitative aspect that came out from our informal discussions with the students (and colleagues) about their experience with using Facebook, deriving in the inclusion of seven questions in the survey. Based on your experience in the use of FACEBOOK, your teacher uses it to support teaching-learning processes.

According to the results obtained, Facebook has not been used specifically for teaching-learning processes. With respect to the question whether it offers students and teachers the possibility of submitting help, 46.5 % responded negatively]. Regarding class scheduling], 51.8% responded that they do not receive such information via Facebook; and with respect to tests, 86.3% of students reported not experiencing an application through social networks. Concerning the submission of information or the uploading of presentations, 53.8% responded negatively, for discussion rooms, chats, or messenger, respondents responded negatively with an 80.7%. Finally, regarding the provision of exclusive groups for education purposes, a 59.1% negative response was obtained. As a conclusion, teachers at a higher education levels are not using Facebook to support teaching-learning processes.

Table 5. The pedagogical use of Facebook by the teacher

FACEBOOK	1	2	3	4	5	lose	total	Mean	SD
Assignment of tasks	169	91	40	34	17	6	357	1.97	1.192
	47.3	25.5	11.2	9.5	4.8	1.7	100.0		
Submission of helps	166	78	47	43	17	6	357	2.05	1.239
	46.5	21.8	13.2	12	4.8	1.7	100		
Class scheduling	185	70	50	30	16	6	357	1.92	1.192
	51.8	19.6	14	8.4	4.5	1.7	100		
Application of tests	308	15	14	2	12	6	357	1.28	.852
	86.3	4.2	3.9	0.6	3.3	1.7	100		
Submit abstracts, upload presentations	192	64	50	28	17	6	357	1.90	1.199
	53.8	17.9	14	7.8	4.8	1.7	100		
Make rooms discussion, chats, messenger	228	31	15	7	10	6	297	1.35	.881
	80.7	8.7	4.2	2	2.7	1.7	100		
Opened exclusive groups for students	211	52	40	29	18	7	357	1.83	1.220
	59.1	14.6	11.2	8.1	5	2	100		

Conversely, sharing certain aspects of faculty's private lives with students may have potential educational value aimed to identify the positive or negative outcomes of student exposure to the more personable image of professors that social networking sites inherently afford (expressions of self-disclosure) to their users. Thus, six questions about the perception of the inclusion of Facebook in the support of teaching-learning processes were included in the survey. Table 6 shows the results descriptively of each one of the aspects that were evaluated [about] the perception of the use of Facebook for teaching - learning in the public University. A 5-point Likert scale was used. where 1 = not supporting, 2 = possibly supporting, 3 = often supporting, 4 = mostly supporting and 5 = always supporting

For the students, Facebook can be used for teaching - learning as portrayed by a 47% response between scales 4 and 5. With respect to the question whether it offers students and teachers the opportunity to participate freely and smoothly in the model of in teaching-learning, 41% answered similarly. 51.30%] believe that it may be a tool that encourages the promotion of the exchange of educational content (scales 4 and 5). Finally, 63.60% (4-5 scale) perceive to be allowed that the contents can be seen anytime, anywhere. Paradoxically, although all students sample connect to Facebook only the 59.30% (4-5 scale) thinks it may be a tool that can improve the communication between the students population and expand the network. 59.30% (scale of 4-5) says that if it could be an effective channel of communication between students and teachers. But contrary, about teachers which is not efficient. Perhaps the teacher must be able to develop a personal online at Facebook experience since students know with these details that have been revealed are demeaning it. We think that for this case study, we have to find ways to initiate and manage more efficient, creative and interactive and relevant communication with students. Fortunately, students perceive the use of Facebook as if it can help in teaching-learning method. Therefore, we can conclude that teachers should adapt to this means of communication and be updated to use the tool.

Table 6. Perception of students about if the Facebook can help to process teaching-learning

	1	2	3	4	5	lost	total	Mean	SD
It can be used for the process of teaching - learning	48	95	45	97	66	6	357	3.11	1.36
	0.13	0.27	0.13	0.27	0.19	0.02	1		
Offers students and teachers the opportunity to participate freely and smoothly in the model of in teaching and learning	47	85	75	96	48	6	357	3.04	1.27
	0.13	0.24	0.21	0.27	0.13	0.02	1		
It can be a tool that encourages the promotion of the exchange of educational content	40	57	73	109	71	7	357	3.3	1.28
	0.11	0.16	0.2	0.31	0.2	0.02	1		
Allow the contents (documents, links, videos, etc) can be seen at any time and from anywhere	38	58	74	107	74	6	357	3.34	1.28
	0.11	0.16	0.21	0.3	0.21	0.02	1		
You can improve the communication with the student population and expand the student network	14	48	65	102	121	7	357	3.77	1.18
	0.04	0.13	0.18	0.29	0.34	0.02	1		
It can be an effective channel of communication between students and teachers?	21	46	75	111	98	6	357	3.62	1.9
	0.27	0.31	0.21	0.14	0.06	0.02	1		

6. Conclusion

This study was intended to find out if students used Facebook, as well as their perception about this and if it could be on the model teaching - learning. First we asked about the general data students and later became questions about perception about its use in the teaching model of learning; the foregoing was since wanted to know its educational identity related to Facebook and your perception if it helps learning. When analyzing the results we found that teachers have a limited use of Facebook since 47% used it less than two hours. And for students, 46.6% use it more than two hours a day. Based on these results, we can say that students showed greater acceptance for the use of Facebook in the teaching-learning model. Concerning questions about the perception of the potential use of Facebook for teaching-learning purposes, results indicate that it could be an effective channel of communication between students and teachers and this can as turn contribute to positive learning outcomes. On the other hand, students find this tool more useful for teachers and can greatly improve the level of communication that is reflected in the interest of students if teachers are trained and use this tool. It is also important to address the limitations of this study, dealing with sample size, was not applied a survey to teachers to get to know your appreciation, limiting generalizability. All results must be interpreted with this in mind. For future research, this survey could be applied to private Universities in the same area to explore the potential benefits that could have this network in the teaching-learning process.

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Using Gagne's nine events in learning management systems

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Abstract

The learning management systems (LMSs) are being increasingly used in distance education. However LMSs do not maintain any elements to guide educators to design and develop instruction. The purpose of this study is to design, develop and evaluate a LMS that guide facilitators when designing instructional modules for their online courses based on the Gagne's nine events. Using the revised development process model called "Waterfall Model", the LMS was developed and evaluated. The users of the system found the developed LMS useful. Other instructional models can be integrated to LMS in following studies.

Keywords: distance learning, gagne's nine events, learning management system, internet-based learning

1. INTRODUCTION

Today, the rapid development of technology continues. Technologies have made human life more complex than ever before. However, the opportunities provided by technology and innovations brought about a positive impact on individuals' lives. Traces of the rapid development in technology in the field of education can be observed. Even individuals not having time to attend the face-to-face education due to many reasons including, but not limited to, work, family, distance and health can continue their education using the means provided by the technology (Palloff ve Pratt, 2003). Distance education is the most widely known example of the technology use in education. Distance education provides many advantages. Time and distance flexibility is the chief benefits of distance. Using computers or portable mobile technologies web-based applications of distance education are implemented nowadays.

The rapid development in technology reduced the cost of the equipment used to offer distance education programs. Individuals can easily afford to obtain them. The rapid increase of the use of the internet even using mobile devices has opened a new avenue for distance education. Realizing the benefits of distance education, many universities throughout the world offer associate, undergraduate and graduate degree programs online. Even many universities use distance education tools to support their face-to-face education which is known as blended learning. Therefore individuals can continue their education and can communicate with their classmates and facilitators beyond the classroom walls.

The rapid increase in the number of online courses and students taking them is observed due to the advantages offered by the online education. Many LMSs have been developed for the distance education. LMSs vary according to the tools that they have for online education. Well known LMSs are Moodle, Sakai, Dokeos, ATutor (open-source), Blackboard (commercial). Looking at all the features, almost all LMSs offer similar tools

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for online students and teachers. With these features, students can have an opportunity to learn at their own pace. Students outside the class can access the course materials and allocate more time to work with them using the advantages of LMSs. Students can access the course, course content, objectives and evaluation criteria in LMSs. Instructors who teach in the traditional education system have experienced difficulties in adjusting to the new system. Online facilitators have faced difficulties primarily on designing, developing and evaluating teaching materials for distance education courses. (McQuiggan, 2007). Although faced challenges are different from the challenges in the traditional educational setting, they vary from discipline to discipline. Many universities prefer to use open-source LMSs. Although many additional properties can be developed and integrated into the open-source LMSs, it requires programming knowledge and skills.

Designing the online course is as difficult as developing new features on the LMSs. Facilitators have faced the challenge of designing course module for their online courses. Facilitators have to know how to design online courses on LMSs in order to design their online courses. The lack of guidance that LMSs have to guide facilitators to design and develop instructional modules leads to the formation of a number of pedagogical problems for the online course design. Especially facilitators coming from different academic background other than education suffer to design sound instructional modules for their online courses. This in turn leads to online course facilitators prepare distance education materials below the expected standards.

In general, web-based distance education was defined as a form of education that through information and communication technologies bring the students, teachers and teaching materials in the same environment (Emir, 2006). There are many advantages of web-based distance education. They eliminate the limit of time and space in education, provide equal opportunity in education, and offer students the opportunity to learn their own learning pace, bring a certain standard to the education, and reduce the cost of education. The LMSs are being increasingly used in distance education. However LMSs do not maintain any elements to guide educators/facilitators to design and develop instruction. The purpose of this study, therefore, is to design, develop and evaluate a learning management system that guide facilitators when designing instructional modules for their online courses based on the Gagne's nine events. For the purposes of this study following research questions were investigated;

1. What are the elements of the design model?
2. What are the opinions of system administrators, facilitators and students about the usefulness of the developed LMS?

2. METHOD

A learning management system that guides facilitators to design online course module was developed in this study. The revised version of the "Waterfall Model" was constructed and used in this study to design the LMS. This model consists of four consecutive phases namely analysis, design, development, and evaluation. The product of each phase was a prerequisite for the entry of the next phase. The basic assumption of the developed model is to guide facilitators to prepare the web-based distance education course modules for their online courses based on Robert Gagne's nine events.

In the analysis phase, general characteristics of users of the system were analyzed. In this context three general user types were determined. These were system administrators, facilitators, and students. Second, a programming language used to develop the system was determined. Finally, software used to prepare a database was selected.

As a result of analysis of individuals who would use the system, the system administrators were chosen among the individuals involved in the information processing unit. These people were required to have technical information in respect to do the basic setup of the host computer, provide and ensure the functioning of the management of the system. The facilitators were selected among lecturers graduated from the undergraduate programs associated with the Mathematics, History, Electronics, Law, Economics, and Medicine. The students studying at the secondary or higher level were comprised of individuals with basic computer skills.

When selecting the programming language, the necessary programming languages were researched and the alternative programming languages were identified. Finally, PHP and ASP were selected as the programming language. PHP was chosen because it is open-source with no cost. In the final stage of the analysis step, MySQL, a freeware database preparation program can be used with PHP programming language, was selected.

Three design were completed namely the design of infrastructure of online education system, the design of the database and the design of the user interface in the design phase. Web-based online education requires a certain internet infrastructure to access individuals and to provide course contents. The system consists of the three main parts, which are the visual part seen by user, the programming language running in the background, and the database storing procedure. The user interface of the program is the space where interaction between users and computers occurs. The user interface of the program should be designed carefully since the users use this space to see images and do course activities. The buttons, links and information on the interface can be easily reached and the users should feel comfortable when they use it. Programming language is the bridge between the users and the computer while maintaining communication between them. Database is the system that allows storing the specific information, organizing and retrieving them to use it again later.

In this system, the system administrator is the person responsible for the execution. The system administrator is responsible for creating and updating an account of the facilitators and the students, adding a new course, assigning the facilitators and the students to the course in the system. The facilitator is responsible for creating the module related to the course content based on guiding Gagne's nine events. More than one course module can be prepared for each content and evaluation questionnaires for each of them. The students are defined as those who access to the system and take the course content in the system. They are registered and assigned to the course by the system administrator. The students should follow the course materials and respond to the evaluation questions to complete the course module.

The developed LMS was designed to guide the facilitators to design and develop course modules based on Gagne's nine events. These events were defined as: (1) Gain attention, (2) Inform learner of objective, (3) Stimulate recall of prior knowledge, (4) Present the material to be learned, (5) Provide guidance for learning, (6) Elicit performance – practice, (7) Provide informative feedback, (8) Assess performance, (9) Enhance retention and transfer. Due to the relational structure of the database, it is simple to make changes among the elements and updates the system information.

Three different designs were made for the three different user groups. The system administrator has the authority to add a new facilitator, add a new course, add a new student and update their information. The facilitator creates the course modules using Gagne's nine events. The evaluation questionnaires are prepared on the user interface, and asked to the students. Students log in the system using the username and password to reach the course materials. Students can study on the course materials and module as much as they want. The system supports all kind of videos, pictures, graph, animations, and plain tests as course materials.

Web-based distance education system was developed in this stage. In this context, the database, the programming code and the user interfaces were primarily created. Firstly, the database was developed in

accordance with the information obtained in the design phase. Secondly, the programming code was written. Finally, the user interfaces were developed.

The web-based distance education system was assessed using “Usability Testing”. The purpose of the evaluation is to make it more useful. In the scope of the evaluation, the tasks of the system administrators, the facilitators and the students were determined while they use the web-based distance education system. The levels of performing these tasks were measured by the usability testing. In addition, Think-aloud method together with usability testing was used to find out the levels to perform the tasks assigned to the system administrators, the facilitators and the students, the users’ choices while performing the tasks, and why these choices were preferred. The test environment was videotaped with sound record. The levels to complete the tasks were measured by using likert scale at the end of the tests. Also under evaluation phase using open-ended questions, opinions of users about the usefulness of the program, the effectiveness of the program, the advantage and disadvantage of the program were collected.

The study population consists of the system administrators, the facilitators, and the students. The sample selection was made separately for each group. The system administrators of the web-based distance education system were selected using convenience sampling method (Yıldırım ve Şimşek, 2006) among those who were experts in the field of educational technology and had at least a PhD degree. In this context, accessible three faculty members each of whom worked in different universities were selected. The facilitators were selected using convenience sampling method among those who graduated from the Faculty of Arts and Sciences, were going on teacher training programs in post-graduate education as well as worked in private schools as teachers. Each facilitator was carefully selected from different universities. Ten students were selected using convenience sampling method randomly from a secondary education institution.

Data were collected through evaluation questionnaires and interviews. The evaluation questionnaires were prepared for three user groups. The interviews were performed using open-ended questions for each of the three groups. The evaluation questionnaires for the system administrators, the facilitators and the students, originally created by Huang (2009), were revised and reorganized as a five-point Likert-type rating scale. The opinions of three experts in the field of Instructional Technologies and Computer Education were received in order to determine the validity of the scope of the surveys. The final changes were made on the surveys based on these opinions. The data collected using these surveys helped to determine the levels of the web-based distance education system being able to use by the system administrators, the levels to perform the tasks of the facilitators required to complete, the levels to perform the tasks of the students required to complete.

Four open-ended questions were created for the each group. The interviews were performed with the system administrators via e-mail, with the facilitators and the students through face-to-face. The interview results were used to find out the usefulness, effectiveness, advantages and disadvantages of the program. In this study, descriptive statistical analysis is used to analyze quantitative data and content analysis is used to analyze qualitative data.

3. FINDINGS AND CONCLUSION

According to the survey results, the system administrator was able to perform easily the tasks specified in the web-based distance education system. The only trouble was experienced in fulfilling the editing process of a course previously uploaded. According to these findings, the developed web-based distance education system ensured that the system administrator easily fulfilled to their tasks. Only the platform that allows users to change the documents previously uploaded was needed to be updated.

The facilitator reported that they easily fulfilled the tasks specified in the developed system. The most of the facilitators answered “Completely Agree” or “Agree” for the question “I am able to perform the tasks specified in the system” The facilitators became successful in the process of preparation of the course module based on Gagne’s nine events. According to these findings, the system was designed for the facilitators to easily fulfill the tasks specified in the system. When looking at the level of the students to perform their tasks, the students became successful to complete the specified tasks. Most of the students answered the question “I can do the tasks specified in the system” as “Completely Agree” or “Agree”. The students logged in the web-based distance education system and completed the specified tasks easily. Therefore it can be said that the systems was designed for students to use it easily.

The opinions of the system administrators, facilitators, and students about the usefulness of the web-based distance education system were obtained by the answers of open-ended questions. All of the system administrators emphasized that the program was easy to use. In the same way, all of the facilitators said the program was simple to use. One of the facilitators stated that “the program is simple, really simple. In the first use one can easily find everything”. Another one stated that “the program is very useful since it clearly explains every step required to do as well as the guidelines of the program is explanatory”. The system is convenient because it is easy to use and supported by examples.

All of the students indicated that the program was easy to use. One of the students said about the usefulness of the program that “Using the program is very simple, easy to use. Everyone can easily use it”. Another student also said similar things “The program is simple, easy to use. A user can easily log in the system. After you log in the system, the course topics are in front of you”. The students found simply, convenient and handy the course contents prepared by following Gagne’s nine events.

The opinions of the system administrators, facilitators, and students about the effectiveness of the web-based distance education system were obtained by the answers of open-ended questions. While evaluating the program, the system administrators found it simple, elegant and simple to use. They stated that “the system can fulfill the specified basic functions but it has some parts required to develop and can be improved in future studies.” All of the facilitators gave a positive opinion on the effectiveness of the developed system. One of the facilitators said “I believe that it will be effective in terms of an instructor so it brings a great convenience” another one said “I think it can be used effectively. The guide of the system is well-prepared so anyone can use it easily” with these words mentioned the effectiveness of the system. Moreover, “the effectiveness of the program in each stage was thought so it looks like a multi-faceted program”.

As general, all of the students found sufficient overall effectiveness of the system. They stated that they can easily reach the course grades. One of the students said that the design of the interface is effective “the interface is simple, easy to use and pretty straightforward. I can easily find the course grades”. This easy and straightforward interface positively affects student achievement. The system administrators, facilitators and students found sufficient to the developed system. It can be concluded that using Gagne’s nine events as a guide to prepare course modules increase the effectiveness of the system.

The users of the system successfully tested the system that guides the facilitators when designing instructional modules for their online courses based on Robert Gagne’s nine events. As a result of the study, the developed system could be used for the development and implementation of instructional module for the web-based distance education courses. In this study, the LMS was designed using revised “Waterfall model”. A different model can be designed to develop similar LMSs in the future. Also other instructional models can be integrated to LMS in following studies.

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Using ontology theory to enhance problem solving skills

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Abstract

It has been proved that using Ontology to construct hierarchical structure for concepts could help understanding conceptual knowledge which is a necessary to problem solving. The study proposes a novel teaching material based on Ontology theory to enhance students' problem solving skill on computer virus. An experimental study is adopted to evaluate the new teaching material. The experiment result shows the proposed teaching material based on Ontology concept outperforms the traditional one. Moreover, the research examined the subjects' attitude with the questionnaire "Technology Acceptance" and found out that over 50% of learners considered the teaching material was easy to learn and useful in clarifying their misconceptions as well as helpful to their problem solving skills.

Keywords: Ontology, Computer Virus, Information Discipline, problem solving.

1. INTRODUCTION

With the popularization of personal computer and internet, Computer Virus, which causes the situations, such as shutting down the Operation System, destroying data or documentation, and stealing private data, has been the biggest threat for computer users.

Generally speaking, users usually rely on the commercial antivirus software to solve the virus problem. However, Cohen (1987) pointed out that all commercial antivirus software could not guarantee against all computer virus. The most important thing is to protect computer system's vulnerabilities which are easily invaded or attacked by computer virus. If the computer is infected with computer virus, users should identify the type of computer virus and their existence, in order to make antivirus protection effectively.

The definition of computer virus was a kind of program which can infect other programs by modifying them, and damage the whole information system. Hung & Feng (2010) investigated the importance of different computer virus topics in ICT textbooks and six dimensions were induced. The six dimensions are the definition of computer virus, the categories of computer virus, the characteristics of computer virus, the spread channel of

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computer virus, the damage by computer virus, and the prevention of computer virus, which are shown in Table 1.

Table 1. The means of the six dimensions of evaluative indicators.

Dimensions	Mean
Definition of computer virus	3.85
Characteristics of computer virus	4.01
Category of computer virus	4.07
Spread of computer virus	4.17
Damage of computer virus	3.81
Prevention of computer virus	4.32

As Table 1 shown, the mean of each dimension were all higher than 3. It implies that ICT teachers considered the six dimensions of computer virus should be integrate into information education textbooks. Moreover, the dimension, prevention of computer virus, get the highest score which means that the information teachers considered prevention of computer virus is the most important issue.

Therefore, how to protect computers from virus' attacking and/or to solve computer virus problems have been recognized as an important capability for a computer engineer.

In order to achieve the aforementioned goals, the study proposes an innovative teaching material with an interactive information network security based on the ontology architecture. Students could master the characteristics of computer virus and their related infectious symptoms through the teaching material. Moreover, they can learn how to apply tools to get rid of computer virus instead of depending on commercial antivirus software. This course supported by the innovative teaching material equips students the practical ability to solve the relevant problems, even when they face brand new computer virus in the future.

Ontology represents knowledge as a set of concepts or terminologies, which describe the high-level abstract knowledge or specific knowledge in the organization (Gruber, 1993). Ontology is a shared concept, formal and explicit representation, which describe some concepts with specifications, including the description of concept, association and attribute. Furthermore, the mail concept of Ontology is used to share and reuse knowledge (Lenci, 2001).

Researches confirmed the high accuracy and stability of using Ontology to construct conceptual knowledge (Yang, Cai, Sun, & Li, 2010). Therefore, this study could apply ontology theory to establish the relationship between concept, terminology and vocabulary of virus/antivirus (Swartout & Tate, 1999).

The article is organized as follows. Firstly, the literature reviews and the competence indicators analysis in Information education are introduced. Then, teaching experiment and settings of environment are described. Finally, conclusions and future study are addressed.

2. METHOD

How to teach an ill-structured learning subject (e.g. how to get rid of computer virus) is a challenge to instructors. There are a lot of ways to make your computer infected with computer virus, and the antivirus solutions are not always consistent. Therefore, most students do not know what and how to do and feel frustrated on learning how to diagnose the computer virus according to the symptom and removal of the viruses that infect computer. Consequently, how to transform the ill-structured learning unit into high-structured one is an issue. The well-structured concepts which are created by ontology are believed to provide students a better understanding and to promote their learning effectiveness. The study proposes a teaching material based on the ontology architecture.

2.1. Construct computer virus database with Ontology structure

This paper builds up a virus instructional material to collect the characteristic data of computer virus, which including 5 categories, infects, characteristics, location, how to infect and how to remove. It is defined as following: "Virus database should contain virus-related reference, e.g. the Original place and initial date which the computer virus was found, author, symptom, infects, damage, likely to cased, and provide how to remove it."

The sample data in virus database were collected from the "computer worm" category of Virus Encyclopedia in Trend Micro corporation via online computer. According to virus newness, major computer virus and the completeness of description for computer virus, computer viruses were collected and used in the ontology knowledge structure of the study. The computer viruses are divided into eight categories by the use of prefix. Table 2 shows the categories.

Table 2. Virus classification based on prefix.

Prefix of computer virus name	Computer virus type
WORM	Computer worm
W2KM, W97M	Macro virus
PE, NE	.com or .exe executable file virus
BKDR	Backdoor
TROJ	Trojans horse
BAT	Batch file virus
VBS, JS, HTML	VBScript, JavaScript, and HTML virus
GENERAL	No specific characteristics

2.2. Experiment instruction

As aforementioned, the participants of the study, 80 sophomore students of two classes in Information Department of higher education in Taiwan, were divided into two groups, the experimental group labeled as “OS group” (teaching material organized by Ontology Structure) and the control group labeled as “Traditional group”(traditional teaching material). This instruction was implemented in a one-semester course, Information Technology Network Security, which aims to cultivate students to understand the concept of computer virus and possess practical skill of antivirus protection. The study evaluates and validate the effectiveness of the teaching material by comparing the learning achievements of these two groups including pencil and paper exam (assess the concept of computer virus) and implementing the proposed antivirus teaching material (practical problem-solving skill).

According to aforementioned, our paper proposes a novel teaching material which can help students to acquire the knowledge of computer virus through Ontology framework. According the logical procedure, students could catch the possible solving directions for the virus problem after classifying the characteristics of computer virus and building their schema for solving virus problems in this course.

2.3. Innovative Interactive Ontology Teaching material

This paper proposes an innovative instruction material for students to learn characteristics of computer virus, such as infects, likely to cause and so on in this course. Students can input the characteristics of computer operation or the disease (characteristics) of computer abnormal to inquire related information, and this course will display information of computer virus and calculate the concept similarity of various viral properties that match the searching criteria. Students could identify the relationship between different computer virus to infer the effective solution from the analysis of concept similarity. Concept similarity is acquired by inputting query, and calculated properties of computer virus accounting for a percentage of the overall results.

In order to enhance student's practical problem solving skills on computer virus, an environment for implementation test, including 60 desktop computers, each of which are installed Microsoft Windows XP SP3 OS, Microsoft Office 2003, and a commercial antivirus software (Avira AntiVir Professional) is arranged. These computers have been infected purposely by computer virus of 2011 computer virus package in advance. After computer booting, there are some characteristics of being infected by computer virus, such as website kidnapping, cannot open the task manager, IE browser is replaced, and so on. The instructors assess students' practical problem solving skills according to "two-way specification", such as inspecting whether the computer is infected, removing the computer virus from this computer and so on.

3. RESULTS

As aforementioned, the participants of the study, 86 sophomore students were divided into two groups, "OS group" (45 students) and "Traditional group" (35 students). This study adopts their scores of a basic course, "Introduction to computer", as pre-test, which is a reference to students' prior knowledge. After teaching "the knowledge of computer virus" for three weeks (three hours per week), the students take examinations of knowledge and implementation, and these two scores are used as post-test.

3.1. *t-test analysis on prior knowledge*

In order to understand the difference of prior knowledge on information literacy between these two groups, t-test is adopted to evaluate the scores of these two groups on the course "Introduction to Computer". The pretest result ($t=1.126$, $p=.263 > .05$) revealed that these two groups had similar levels of prior knowledge on the information literacy before proceeding with the experimental instruction.

This means that there is no significant difference between the learning achievement of "Introduction to Computer" of experiment and control groups. Maybe, there is a reason that students from the department of information have the same educational experience and learning experience, which result in the similar background and basic information network security knowledge. Thus, it can be assumed that there is no significant difference in experimental and control groups of IT security knowledge.

3.2. *t-test analysis on concept clarification*

Regarding the effect of OS upon concept clarification, both groups are treated with three weeks of information network security course, and then take a Paper-based examination for measuring the difference of computer virus knowledge between these two groups. The analytical results, revealing there is no significant difference between these two groups of students in post-test of knowledge of computer virus ($t=1.194$, $p=.236 > .05$).

3.3. *t*-test analysis on enhancing problem solving skill on computer virus.

Regarding the effect of OS upon enhancing problem solving skill on computer virus, both groups take a implementation test for measuring the difference of problem solving skills on computer virus between these two groups after three weeks instruction. The T-test shows that there are significant differences between these two groups in score ($t= 10.561$, $p=.000<.05$). The mean value of experimental group is higher than the score of control group. The students' practical skill of experimental group is better than control group.

4. CONCLUSIONS

This paper proposes an innovative teaching material applying Ontology architecture to develop a teaching material, which constructs the knowledge Ontology of computer virus and reduces the students' misconception of computer virus. The experiment result shows that students could solve the problems of computer virus infected more accurately and quickly, after studying this teaching material, and this proposed knowledge Ontology computer virus could actually increase the effectiveness and efficiency of this innovative teaching material.

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Using the solution focused approach in school counselling

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Abstract

Schools are social institutions that great deal of children and young people who different socio-economic, cultural background has come together with the aim of education and training. One of the main functions of school is to help children/young people to improve social behaviours that compatible with their personality and environment by interfering the interaction points with their environment. School counsellors (social worker and expert of psychological counselling and guidance) may not provide sufficient and qualified service because of the fact that they have to work with a lot of student in their employment period. Short-termed and more included work is important for cancellers to enhance their functionality in schools. So, it is considered that the solution focused approach may be useful for counsellors and students. In this study, using of the solution focused approach in school counselling will be discussed.

Keywords: Solution Focused Counselling, Solution Focus Approach, School Counselling;

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1. Historical Background of Solution Focused Approach

The solution focused counselling which often referred as “brief counselling” is a type of counselling that focuses on present and future rather than on past experiences. It’s the only thing to deal with any desired solutions about the client’ problem. This approach was brought up by Steve de Shazer who is a social worker and Insoo Kim Berg (de Shazer’s wife) and developed by a team including Eve Lipchik, Jim Derks, Elam Nunnally, Don Norum and Marilyn LaCourt in 1970’s (Macdonald, 2007; Lipchik et al. 2012; Bachhaus, 2011). Many aspects of the approach had been used in psychodynamic theories, behaviour therapies, systems theory and so on. The virtue of the approach is the emphasis of solutions (Hoyt, 2008). The solution focused approach has evolved out of brief therapies which focus on change. And the client is the heart of changing process.

Hoyt (2008) and Macdonald (2007) highlight to respects the clients’ resources, abilities and motivation, and are directed toward building solutions rather than increasing insight about one’s situation. Solution focused approach’s core elements are a non-expert stance; an emphasis on the client’s language; the requirement that the number of sessions is kept to the minimum necessary; the value of making changes slowly; and the recognition that the problem and the solution are not connected (Macdonald, 2007). Besides, it’s important to focus on client’s strengths and having the capability to be self-directed at changing (Lehman et al. 2012).

2. Assumptions of Solution Focused Approach

There are some assumptions which solution focused approach based on. It’s necessary to talk about the solution focused approach’s tenets before explain what the assumptions are. Solution focused approach’s have 3 basic tenets.

The first one is “do not fix it if it’s not broken”. Solution focused approach does not look for underlying issues or see the presenting problem as only the tip of the iceberg (O’Connel, 2003; Connie, 2009). The only thing the helper needs to deal with is the defined problem by the client. The second one is “find out what works and keep doing it” (Sklare, 2013). Counselling process gives chances to the client and the helper to know what works. It’s not the best way to focus on failures or the things not working to solve a problem. It’s important to bring the clients realize there are times that the problems do not exist. Encouraging the clients is important in this case. And the last tenet is “if it’s not working, stop doing it and do something different”. According to de Shazer (1994; cited in Quick, 2008) if a client keeps doing the same thing that is not working which is the exact

definition of problem. So it is important to find different ways to achieve the required amendment. These tenets make the intervention process more clear.

There are some assumptions which based on the tenets as mentioned above. According to Quick (2008), Sklare (2013), Lipchik (2011) These are:

- “Every single client is unique
- The clients have strengths and resources to handle with her/his own problems,
- Nothing is just negative. There are times that the problem does not exist,
- Minimal changes bring major changes,
- Talking about solutions rather than problems pave the way,
- There is always two sides of a situation, it depends on where you look from,
- Solution focused counselling may takes a long time,
- Emotions are a part of the problems as well as the solutions,
- Using the client’s words makes the process more understandable for the client,
- The client’s negative definitions should altered with the positive ones,
- Change is inevitable, there is no resistance,
- The past can’t inalterable, so the client should focus on present and future.”

The solutions focused approach was founded on these assumptions. And it’s approved that acting with these assumptions will create better results in the counselling process.

3. Using the Solution Focused Approach in School Setting

Schools are social institutions that great deal of children and young people who different socio-economic, cultural background has come together with the aim of education and training. One of the main functions of

school is to help children/young people to improve social behaviours that compatible with their personality and environment by interfering the interaction points with their environment.

There is wide range of problem in school settings like school violence, bullying, gang activity, interpersonal conflict, failing at the courses, conflict etc. “These settings can be places of solutions, strengths, and successes at the same time. There are numerous practical ways for school-based mental health professionals (school social workers, psychological counselling and guidance specialists, and school psychologists) to harness the solutions that are already happening in their schools” (Kelly et al., 2008). Using this method facilitates the changing process and improves the students’ problem solving skills.

There are a lot of student at schools. It obstructs the possibilities of paying attention of the whole students. Intervention is limited because of lack of time, crowd of students and the other responsibilities which the helper need to carry out etc. Because of these reasons solution focused model is the best way to change the things that not working in limited time period and reach more students.

Self-determination is a basic right of individuals according to social work discipline. This approach looks out for one’ interests. It is important for children and young people to learn live with own choices. This attitude helps clients to take responsibility about their own life.

This model is especially effective for school counselling because it doesn’t require insight. The other point is the model’ focus to conversations which orientate the students to positive behaviours (Sklare, 2013). It can help to enable children to change things (Milner & Bateman, 2011; Sklare, 2013). Starting where the clients are especially important. It keeps the client in present time. By the way behavioural change and problem solving come true easily.

4. Techniques of Solution Focused Approach While Working With Children and Young People

There are several techniques which helper uses while working with children and young people. “The most well-known and popular solution-focused techniques: scaling questions, the past success question, the preferred future question, the platform question, the exception seeking question, reframing, indirect compliments, the miracle question, summarizing in the words of the client, the what-is-better question, normalizing, the usefulness question, the observation question, the perspective change question, the coping question, the continuation question, the prediction suggestion, leapfrogging, and mutualizing“ (Visser, 2011). Some of these techniques are used in other counselling models too. But this model differs from the others with the way of using these

techniques. The difference is the model' focus on solutions. Every one of them be in used for create positive change, strengthen the clients, improve the clients' problem solving skills and bring the clients to today and future. The thing is not the problems that should deal with but the solutions. And these techniques make easier the problem solving process. Especially the facilitating questions. There are some examples about these questions below:

- scaling question: "Please give yourself a point about your situation between 1-10. What should you do to step up one point?"
- the past success question: "Have you ever been able to solve such a problem before?"
- the preferred future question: "How do you want your situation to become?"
- the platform question: "What has helped to bring you to your current position?"
- the exception seeking question: "How did you make that happen?"
- indirect compliments: "Wow, how did you achieve it?"
- the miracle question: "You went home and fall asleep. A miracle happened when you're sleeping and your problem is solved. But you don't know anything about it. How do you realize that your problem is solved when you wake up the next morning?"
- "the what is better "question: "Think about your situation. What is better now?"
- normalizing: "You are disappointed, I understand. It's normal to be disappointed right now."
- the usefulness question: "What was useful?"
- the observation question: "Could you, between now and our next conversation, which things are a bit better?"
- the perspective change question: "How will other people notice things are better?"
- the coping question: "How did you manage to cope before you gave up?"
- the continuation question: "What happens in your situation that you want to continue to have happen?"

- the prediction suggestion: “Each night, before going to bed, predict whether or not you will succeed in
- the overcoming the urge question: “Pay attention to what you do when you overcome the temptation or urge to fall back”
- the optimism question: “What are the small signs you see that indicate you will succeed in?” (Winbolt, 2011; Visser, 2011; Connie, 2011).

These questions make the process clear to create desired change. Asking the solution focused questions as mentioned above teaches the children and young people to build a healthy life.

5. Conclusion

Solution focused approach was developed by a social worker, so it has been using by social workers effectively for decades. It leads both social worker and client to focus solutions and it takes short-time. Because of these reasons this approach is favourable for some helpers including social workers. The thing of this study to

show it's such a useful approach while working with children and young people. People used to speak problematic way not the positive way. It's important to evoke the children and young people that there are times good behaviours occur. Using these techniques and by motivational intervention desired change can come true.

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4th International Conference on New Horizons in Education

Us advanced manufacturing skills gap: innovative education solutions

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Abstract

US Manufacturing's future lies in educating new generations for skill-intensive manufacturing jobs involving STEM and computing. The paper covers manufacturing from workforce perspectives; educational and other causes for decline, and two educational innovations, chosen for their potential to facilitate US Manufacturing's growth, and with it the US economy: Massive Open Online Courses ("MOOCs") and Stackable Credentials/Credits. Separately and together each could hold a key to lifelong employability at acceptable wage levels for professionals who fill the US manufacturing workforce gap, revealing the gap, at its heart, to be one in education, which the innovations discussed here, could help alleviate.

Keywords: US manufacturing skill gap, higher education, massive open online course, MOOC, stackable credentials and credits advanced manufacturing workforce, MOOCs, stackable credentials, stackable credits

1. Introduction

Innovations in education are numerous today, but because this paper focuses on the nexus between educational innovations and the US advanced manufacturing workforce, only two will be discussed in detail. Even so, with so many innovations in education occurring rapidly, the potential exists for higher education to tackle not only some of its own real problems, such as affordability, but at the same time to reinforce education's real-world applicability to tackle larger plagues beyond the ivory tower's walls including that of a workforce shortage in one specific industry (Carlson and Blumenstyk, 2012).

2. What is advanced manufacturing?

When Americans think of manufacturing, the usual conjured images are "stuff"--large and small--and "dirty" factory floors where menial and dead-end jobs are performed. The specific "stuff" being made is ever-changing and includes foods, textiles, chemicals, drugs, devices, equipment, machinery, and small and large widgets or gizmos of all sorts. However today, the materials, components and systems by which "stuff" gets produced have changed dramatically and in ways in which the "dirty factory floors" of the past decidedly play no part.

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The term, “Advanced Manufacturing,” is used to describe this transformation and refers to “stuff” whose creation requires higher degrees of technical competence, leveraging of new technologies and implementation of processes often entirely computer-based. Better known commercialized examples include precision machining with computerized numerical control interfaces, mechatronics (i.e. combinations of mechanical, electrical and information technology elements), and process technologies (e.g. batch processing of drugs, food, glass). In the *Ensuring Leadership in Advanced Manufacturing* (2011) report to President Barack Obama, future new technologies involve advanced sensing, measurement and process control; advanced materials design (e.g.; metals, coatings, ceramics); information technologies including visualization; energy efficient processing; and nanotechnology. These efforts will one day permit “stuff” to be made on a large scale by robots, artificial intelligence machines, and 3-D printing. The workforce leading the research and development activities clearly are well-educated professionals with bachelors, masters and doctoral degrees from the disciplines of Engineering, Science and Mathematics. The execution of their work is not done on a “dirty factory floor.”

These three academic disciplines represent three-fourths of the academic disciplines in the term, “STEM,” which is an acronym for Science, Technology, Engineering and Math. Indeed, STEM has become a familiar term within American higher education. Educators have heard the clarion calls from a multitude of voices, including President Obama, pressing for a more plentiful STEM-adept citizenry who are needed to meet the challenges of the evolving global economy and most certainly to resuscitate a depleted US manufacturing base. Yet as this call gets answered and the sector blossoms, Schwartz (2013) predicts that there be no equally dramatic boom in the number of workers needed to support it. That is, never again will as many people be needed on factory floors—“dirty or not”—as once was true. Already, the sector has added 500,000 jobs since the recession in the US economy ended and the value of what the nation’s factories produce is close to as high as it once was, but there are still 2,000,000 fewer manufacturing workers today than in 2007. Nearly all of the American manufacturers that survived the lean years did so by remaking themselves into globally competitive companies that depend on high productivity and advanced technologies for their success more than on hordes of assembly line workers. Manufacturing’s future requires fewer people for operations and execution, but each employee will need to possess higher skill and knowledge than ever before. Without deliberate and proactive educational changes, there will not be enough such employees in America to help resuscitate the sector.

Among the multiple of different manufacturing jobs and job categories, there is one category which, relatively speaking and in the conceivable future, continues to afford the largest number of employment opportunities. That category includes jobs requiring skills that align the best with the academic discipline represented by the letter “T” for Technology in the STEM acronym. That is, most small-, mid-, and large-sized manufacturing companies have substantially more jobs in production than engineering. While the large-sized manufacturers will always have pressing needs for more engineers and scientists; the small- and mid-sized companies, which dominate the scene of the American manufacturing base today, are currently facing even more severe shortages of appropriately-educated technologists. Without the human capital or talent of technologists to operate the machines and equipment on which “stuff” is made, manufacturing companies are not able to keep their businesses open. This dilemma is the focus of this paper.

2.1. Status of US manufacturing today

Timmons, Gold and McNelly’s *Facts about US Manufacturing*, 9th Edition (2012), presents the most up-to-date compendium of data on the industry sector, based on the combined expertise of the National Association of

Manufacturers (NAM) with contributions from the Manufacturing Institute and Manufacturers Alliance for Productivity and Innovation. NAM is the preeminent US association of manufacturing companies as well as the nation's largest industrial trade association, representing 11,000 small and large manufacturers in every industrial sector and in all 50 states. The latest publication finds that, "The manufacturing sector in the United States has been in the spotlight more over the past couple of years than at any point in the past half-century [because] it has been one of the lone bright spots in a lengthy economic recovery....No sector creates more economic value or supports more additional jobs than manufacturing." Specifically, they find that for every one person employed in a manufacturing firm, five jobs are created in other sectors (e.g.; supply chain providers). Yet data reveal that the status of the American manufacturing base has fallen on difficult times. According to the edition, among myriad reasons for why are that it is 20% more expensive to manufacture in the US than among the country's major trading partners, excluding the cost of labor, but including the cost to comply with regulations, legal suites, employee benefits, corporate taxes and energy costs; and that this causes manufacturers to move their operations offshore in search of cheaper labor.

The edition's data further reveal that today the US is the third largest exporter of manufactured goods, after the European Union and China, with American goods going to 238 Countries, including 14% to the EuroZone. But warning flags of position decline abound. Two prominent reasons are: (1) the documented low wages paid to the remaining workforce especially in the small and mid-sized firms, which to survive, continue to operate in facilities bearing semblance to the "dirty factory floors" of the past; and (2) the denial of entry into the middle class due to these worker's low wages. A middle class lifestyle was once possible for workers but no longer is for those who lack the required higher "T-related knowledge. Moreover, as these reasons' by-products, youngsters are not being attracted to enter this field, leaving a workforce which is older and less educated versus all other US industry sectors. According to Timmons et al (2012), 82% of manufacturers report a moderate or serious shortage in skilled production workers; 75% say the skill shortage has negatively impacted their ability to expand; and 600,000 jobs in manufacturing are unfilled today because employers can't find workers with the right skills. In various surveys captured by the *America's Skill Gap info-graphic* (2011), few Americans are choosing manufacturing education and careers today. Among 18-24 year olds, 52% have little or no interest in a manufacturing career and 61% would rather pursue a "professional" career. Moreover, 86% of Americans believe tradespeople are important to the nation's economic prosperity and 85% to the standard of living, but only for so long as they themselves are not the ones working those jobs. Then only 1 out of 3 parents agrees to the efficacy of encouraging their own children to work in a trade.

There appears to be little realization that today's manufacturers must have tradespeople and technologists (i.e. the "T" in STEM) who possess different skills including e.g.; computing, and not just highly educated people who have spent significant numbers of years in school acquiring sophisticated knowledge in the three other letters in the STEM acronym. This fact alone prompts new accentuation on a deficiency to be overcome in the American educational system. Traditionally skill gap replenishment occurs in US high schools and vocational schools which issue diplomas; two-year colleges which educate and train and issue both associate degrees and certificates; and four-year colleges which award bachelor's and higher degrees in all STEM areas. In this context, and based on the status of US manufacturing today, high schools and 2-year colleges have not yet succeeded in making significant strides to produce a sufficient supply of technologists, and America's 4-year institutions have not yet committed to according the "T" in the STEM acronym the same status given to the science, engineering and mathematics letters.

3. Two educational innovations for US manufacturing workforce development

This is where innovations in education can and are coming into play. These innovations open the door for new ways for higher level STEM skills to be taught in scalable and engaging ways to youngsters in school and to older workers who require up-skilling to keep and qualify for jobs in advanced manufacturing. The overall number of “T”-adept workers may be smaller than in the past, but the overall importance of educating them for the industry has increased in magnitude as never before to combat the fact that there simply are not enough Americans—young or old—equipped with the required education to help rebuild America’s advanced manufacturing production base. At its heart, this is the situation which provides the nexus to educational innovations and makes them key to any solution attuned to addressing this challenge.

Two educational innovations stand out for their relevance to this problem: (1) Massive Open Online Courses (MOOCs) and (2) Stackable Credentials / Credits, referred to below as “Stackables.” The later has become a focus of US manufacturers and the former of educational innovators. Generally academics approach innovations in the art and skill of pedagogy by beginning with what is already known. But in many ways, MOOCs are not like any structures that are known. MOOCs, for example, are neither like “traditional lecture courses nor traditional distance learning models. The “massive” component changes every aspect” (Heard, 2013).

3.1 MOOCs: What are they?

Wikipedia (2013) defines MOOCs as aggregate classes from multiple organizations offered on a single computer platform. The courses are free (for now) and largely non-credit, but this is changing. The term connotes Open Access (in that learners do not have to be registered at any particular college to enroll), cost nothing and is scalable. Scalability in MOOC terminology means that one teacher is responsible for hundreds of thousands of students. Because of the massiveness of enrollees/course, MOOCs typically have two approaches to instructional design: (1) peer-review, group collaborations through “crowd-sourcing” or (2) online automatic feedback and self-assessments (Kop, 2011). In most cases, MOOC-takers watch short videos which are graded either by computers or by other students. How else would it be possible for one teacher to support a class with so many students?

In its *What You Need to Know about MOOCs (2013)*, The Chronicle of Higher Education editors use multiple sources to compile details of the four predominant higher education US MOOC providers: (1) edX is a non-profit firm started with \$60-million contributed by MIT and Harvard University. So far, it works only with elite US universities (33+) and their faculties and it provides its contractually partnering elite schools with an open source (free) MOOC-supporting platform, placing significant focus on improving the art of pedagogy through “big data analysis” to gain new insights and reveal trends on massive numbers of student learning styles; (2) Coursera is a for-profit venture created by two former Stanford University professors (Ng and Knoller) with venture capital backing. It, too, so far, works only with elite universities (~62) and their faculties, providing, for a charge to partners, a MOOC-supporting proprietary platform while experimenting with a number of additional revenue streams such as charging for licensing, certification / testing and providing hiring managers with lists of promising MOOC-takers; (3) Udacity is a for-profit venture with venture capital funding which was created by another former Stanford University professor (Thrun). It works with computer science academics but does so outside their college contracts. Similar to Coursera’s approach, it is searching for a revenue stream particularly from companies (N=350) which are participating in its “jobs program;” and (4) Udemy is a for-profit company

which works directly both with academic and non-academic experts who develop MOOCs on topics chosen by the expert versus by Udemy. It too provides a proprietary supporting platform which is not free to the student, who pays a fee established by the MOOC expert who then shares it with Udemy. Other MOOC providers, such as the Khan Academy, serve youngsters in pre-college grades.

Even though each MOOC provider has a slightly different financial model, the question of MOOC's overall sustainability as an educational innovation with "legs" may be dependent on whether or not any provider can survive. None has approached profitability yet. Levin (2013) reports that industry insiders believe it may take a 10-year gestation period before revenue streams are sufficient to support funder's investment and entrepreneur's sweat equity. This reality is not deterring venture capitalists from viewing MOOCs as a promising new investment opportunity with Boxall (2012) and Davidson (2013) predicting that MOOCs represent \$100-billion and \$1-trillion opportunities, respectively. Indeed there is reason for this optimism when the number of MOOC enrollments is taken into account.

Keeping track of even reasonably precise numbers of MOOC-takers and their backgrounds is no easy task. According to Dennis (2012) in autumn, 36% of edX's users possessed an undergraduate degree; 2.8%, a master's; and 6% a PhD, with the remaining 30% either in high school or college. By January, he (2013) reports that more than 2 million students signed up with MOOC providers of which 525,000 enrolled for edX courses and 460,000 with Udacity; and in April, Rivard (2013) finds that of Coursera's 200 courses, 3.2 million had registered from 196 countries of which two-thirds live outside the US. Moreover the student experience, as thus far assessed, has been positive. Of the 80% surveyed by edX in Fall 2012, two-thirds said that it was better than taking a similar course in a classroom, only 1% said it was worse. Of special note, however, completion rates are dismal (Dennis, 2012). A survey conducted by Stanford University, when Udacity's founder was still on the faculty teaching his own MOOC class, reveals that only 10% completed it (Marca, 2012); and Parr (2013) reports completion rates of only 7% from students enrolled in 29 different MOOCs. Yet, the trend towards MOOC adoption is proceeding with unparalleled speed among faculty at elite US schools with the later occurring because, at present, only this category has been invited to become part of the major MOOC firms (Rivard, 2013). According to Kolowich, (2013) based on survey results, the motivating factors fueling their support include: (a) an altruistic bent to increase access to higher education worldwide, (b) not wanting to be left behind or being forced into using online techniques, regardless if the emergent technique takes a different form than a MOOC over time, and (c) a desire to increase their personal visibility broadly in academe.

Of course, not all traditional academics are on board and many serious, as yet unanswered, concerns remain. When 2,800 chief academic officers were asked their views of MOOCs from a number of different perspectives, Allen and Babson (2013) find that only 2.6% currently have MOOCs with another 9.4% are in the planning stages; 55.4% report they are still undecided about MOOCs while 32.7% are not planning for MOOCs at all. Also, only a slight majority (57%) of the academic administrators subscribed to the belief that MOOCs hold the potential to attract students to their schools. Even technology-minded educational innovators, who otherwise have shown support, express reservations based on MOOCs use of the rather "tried and true" technology of videos made by participating faculty along with PowerPoint information. This relates to their more serious dismay with MOOCs' inherently limited possibility for meaningful interactions with students (Rivard, March and April, 2013). Closely related to this later point and perhaps the most serious concern of all is MOOC's potential for deepening social class disparities and inequities. The worry here is that over time only students who are able to afford to attend elite universities will enjoy education from on-ground faculty, whereas learners who are

economically less fortunate could receive inferior educational experiences due to being taught through MOOCs which offer constrained and limited chances for meaningful interaction with professors (Xu and Jaggars, 2013, and Rivard, 2013). Another issue is whether the “Open” word in the MOOC label perhaps is misleading. In one sense it is appropriately used in that MOOCs can be taken by students for no cost, but as a paragon for the Open Source movement, “open” is a misnomer. For-profit MOOC companies are creating new software platforms to support not just MOOC courses but hundreds of thousands of students worldwide. These sophisticated platforms are proprietary software. A faculty member and indeed a student engaging with that faculty’s MOOC which is being hosted on one of these platforms does not have the ability to reuse, remix and repurpose any of the content. For any faculty member teaching a subject aligned with the MOOC’s, that person cannot “just take somebody’s lecture notes, add a few paragraphs and distribute them further as part of [his/her] course” (Morozov, 2013). The non-authoring faculty’s ability to do all of this would get closer to what is meant by “openness” in Open Source movement today and is absent from MOOCs.

With so many unknowns about the future of MOOCs, Mittell (2013) finds it helpful to borrow what has turned out to be a lasting metaphor developed by Emanuel “Manny” Farber to understand a different pressing issue of over 50 years ago. Farber was an American painter, film critic and writer who died in 2008 and who had a great influence on later generations of film critics. Once described by Susan Sontag as “the liveliest, smartest, most original film critic this country has ever produced,” in 1962 Farber developed a metaphor to contrast “white elephant art” with “termite art,” and to expound on the virtues of later and the excesses of former. Termite art for him were the B films and under-appreciated auteurs, which he felt were able, termite-like, to burrow into a topic. Of white elephant films, Farber calls them “bloated, pretentious, white elephants [... which] lack the economy of expression found in the greatest works of termite art” (Farber, 1998). Adapting the metaphor to MOOCs, Mittell (2013), an academic (and film critic himself), contends that today’s venture capitalists and entrepreneurial-inclined academics have become so taken with MOOCs because of their “white elephant” aspects. “They’re easy to describe, fit within broader logics of commerce and reform, and since everyone else notices them, [including mass media thought leaders], it’s hard not to talk about them.” Expressing a sentiment likely shared by many academics, Mittell explains that he is always more interested in the termites that change systems through incremental steps and measured reforms; and by analogy, he suggests that educators and thought leaders who are intrigued by, but not yet committed to, MOOCs might delve into the their “termite” aspects. Over time, their analyses could help to transform the general mass media of MOOC hype into a more reasoned and truly transformative 21st century educational innovation.

Despite it all, there are two striking benefits associated with the MOOC movement that could have great moment: can this be one way to make US higher education more affordable, which has become a major plague to the sector today; and, of special interest here, can MOOCs benefit the global economy by helping students and workers become lifelong learners through a new means not yet embraced by traditional educational providers? About the later, those about to enter the workforce and those already in it have begun to realize that they must constantly keep learning if they expect to be able to sustain lifelong employability and earn a family-sustaining income. What better way to stay at the cutting edge than from by attending a free MOOC created by world-renowned professors?

3.2 How MOOCs relate to the manufacturing industry sector

Thus far, MOOCs, as an educational innovation, have not been developed specifically to help ameliorate the decline in the US manufacturing workforce. Yet, *with proactivity and deliberate intent*, this could change. Already, without forethought to such a purpose, this is happening. That is, MOOCs exist today on some of the very topics which advanced manufacturers (and others) say they need their workers to know. These include Algebra and Pre-calculus, Bioelectricity, Calculus, and Electric Circuits. Moreover, due to a different MOOC-related development, these very MOOC classes are now being accepted for academic credit in reputable US colleges.

To wit, recently the American Council of Education (ACE), which represents over 2000 US degree-granting institutions, has endorsed five MOOCs, developed by faculty from top-tier colleges which are among Coursera and Udacity's partners. Included among the endorsed MOOCs are the very ones identified above. ACE's network of colleges permits these colleges to accept ACE's recommendations as transfer credits at their schools. Thus students at these colleges can be granted credit for completing, essentially for free, MOOC courses as part of their degree program. Similarly, Levin (2013) reports the University of Texas system, comprised of 15 Texas colleges, will award credit for some MOOCs from edX starting in autumn 2013. And, according to Rivard (2013), along the same lines, University of Toronto (Canada) has integrated Coursera MOOCs, each of which has sizable video portions, into the curriculum of two established university classes. The MOOCs constitute the "lecture" portion of the Toronto's classes, leaving the Toronto professors with class time to engage their on-the-ground students in lively discussions, exercises, and hands-on experiences. In addition, as reported by Levin (2013) and Rivard (2013), lawmakers both in California and Florida have put forward legislation which would force public colleges and universities under some circumstances to award credit for work done by students in online programs such as MOOCs which were created by entities unaffiliated with their colleges. Time will tell if this particular aspect of the MOOC innovation will work its way through these state's political process, but even if it does succeed there, the idea has been planted nationally. And time also will tell if the MOOC revolution can be used *with deliberate intention* to train the massive numbers of individuals needed to bring the advanced manufacturing workforce base back up to what the industry requires for ever again becoming a key driver of US economic prosperity.

4. Stackable credentials/credits

Identified by the term, "Stackable Credentials," increasingly global industry sectors including US manufacturers are looking to hire individuals with specific and higher level certifiable skills versus high school diplomas or collegiate degrees. While confusion exists concerning the difference between industry-certifications and certificates (and the term is interchangeably used here), one useful rubric is "that certificates are earned through seat time in a classroom [or online]" and industry-based certifications are awarded based on performance on a test, irrespective of where the learning occurs and whether a college offers it (Bosworth and Frugoli, 2013).

According to Austin, Mellow, Roslin and Seltzer (2012), a career-enhancing Stackable Credential is a system with the following six attributes: (1) industry-recognized--industry experts vs educators have verified that the desired learning objectives are being taught; (2) stackable--one credential builds on another sequentially; (3) portable--the achievement is recognized beyond one employer; (4) quality controlled by an outside entity--a employer therefore can have confidence that a certificate-holder really has learned the job's requisite knowledge;

(5) labor market value--the skills taught reflect those in-demand by businesses as validated by reliable metrics such as the number of employer job postings; and (6) are part of a **career** pathway system--there are clear education, training strategies, mechanisms and supports for individual learners *to move from the acquisition of core skills and credentials to higher levels of employment*.

This system is particularly germane for addressing the previously described pressing need by US manufacturers to find workers to fill vacant jobs who possess the knowledge and skills associated with the letter “T” for Technology in the STEM acronym. Today, American workers can become adept in “T” through manufacturing-specific certifications; and, by so doing, are becoming hired. However, because the salaries they earn typically are not high (see above), their automatic entry into the US middle class is no longer ensured as it once was. In light of this, the taxonomy of Austin et al benefits from a refinement which includes a seventh (7th) attribute that uses traditional higher education as the means to enable workers to earn family-sustaining salaries in manufacturing. The new or 7th attribute is acceptance of the credential by US colleges for academic credit in their curricula leading to degrees. According to US Bureau of Labor Standards data (2013), education pays in terms of salary. In a sense, attribute #7 addresses the needs of the employee as an individual learner rather than the needs of the employer for more certified workers. It is an **educational** pathway that focuses on the **individual learner** who can acquire not only industry-certified skills but also the imprimatur of a collegiate degree and, with it, the potential for sophisticated and broader thought processes and understanding of complex problems. That is, today the acquisition of an academic degree relates more directly to the personal and economic best interests of the individual than it automatically does to that of manufacturers, whose needs could be met with employees who stop at the sixth attribute above without continuing their formal education. And because the word, “credits,” increasingly is being appended to the Stackable Credentials term (as in “Stackable Credentials/Credits”), this educational innovation is referred simply as “Stackables” here.

The US manufacturing sector is an industry sector closely associated with Stackables; and, led by NAM, currently has a viable Stackables system (e.g. attributes #1-7) underway to help populate unfilled manufacturing jobs with men and women who at once are earning successively more difficult, credible, and industry-vetted manufacturing certifications and are being afforded the opportunity to go beyond technical skill mastery to acquire academic credits which count towards degrees but are based both on industry-supported training certifications and on actual enrollment in college classes.

As described above, NAM is the preeminent US association of manufacturing companies. Premier among its initiatives stands the *NAM-Endorsed Manufacturing Skills System of Stackables* designed specifically to close the growing skills gap with a system of 52 different nationally portable, industry-recognized credentials which validate both the “book smarts” and the “street smarts” that are needed to be productive and successful particularly in entry level positions in different manufacturing environments. According to Bosworth and Frugoli (2013), indeed NAM’s system represents a blended model of higher education where the manufacturing industry itself takes the lead on defining the standards for competency-based knowledge, and does this in partnership with colleges which, because they are willing to award academic credit for the industry-certified learning, offers students a pathway to acquire an academic degree and eventually higher wages. The NAM System is currently being deployed in community colleges across the country with the first pilots done in Ohio, North Carolina, Texas, and Washington and the stage is being set for the system’s deployment in all 50 states (Austin, 2012).

The system's potential is illustrated at Harper College, a 2-year school in Illinois, where there are 80,000 unfilled manufacturing jobs (Fain, 2012). Harper launched its version of the system in June 2012. In their iteration, students earn successively higher levels of entry-level manufacturing industry-endorsed certificates based on several relevant NAM credentials. More than 50 companies have agreed to hire these students as paid interns as soon as they complete the first level of certification achievable in 4 months and worth 16 Harper College academic credits. Satisfied just with their entry-level internships, some students can see a pathway to progress in their manufacturing careers without further study, but others realize that overtime they can benefit the most from continuing on the concurrent pathway which Harper has created for them which leads both to more advanced certifications and academic degrees. While, as discussed above, manufacturing may be a "tough sell" as a career option to students today, the allure of a paid internship certainly helps. Moreover, derived from different certifications among the 52 in NAM's system, Harper has developed other programs for mechatronics / automation, precision machining, metal fabrication and supply chain management jobs, with each Stackable yielding the appropriate and varying numbers of academic credits. Further layers of the "stack" permit the student to work and concurrently go on in their education. That is, students can earn a manufacturing-oriented 2-year Associate of Applied Science degree or transfer to a four-year college to pursue a Bachelor's degree before or after Associate award. As Soares (2012), a senior fellow at the Center for American Progress observes, this hybrid approach, with both employers and colleges at the table, is a promising way to "bridge the worlds of workplace competencies and postsecondary education".

Roadblocks remain to the emergence of this innovative system in the US including, for example, local versus state versus federal government control of secondary level education and a multitude of stakeholders with sometimes competing agendas whose vested interests often lead to preserving the status quo within the education community (Austin, Mellow, Roslin and Seltzer, 2012). Nevertheless the US Departments of Education and of Labor have begun to take important steps to support stackable credentials and career pathways in general, and, particularly with NAM's strong advocacy, for the US manufacturing workforce base.

5. MOOCs versus stackables: Is one or the other or both necessary to rebuild the US manufacturing workforce?

While there is a relationship as shown between MOOCs and Stackables, both separately and together can help to meet the challenge of a depleted US manufacturing workforce base despite the fact that, as change agents, MOOCs and Stackables represent different "units" of educational innovation. That is, MOOCs are about a specific way in which a topic of learning is delivered to students; and Stackables are about a new career integrated system or pathway. That is, MOOCs method of delivering learning is online using a specific pedagogy appropriate to educating thousands at a time; whereas the Stackables' system is one that requires an effective mechanism for collaboration and coordination among institutions of higher education, industry and government. The Stackables system itself has many layers of which only one is concerned with the way content or learning is delivered and although MOOCs may be one of these ways, there are many others (e.g. on-ground instruction). Put another way, MOOCs may become a significant way for learners to acquire manufacturing-related skills and knowledge in the future regardless of whether or not Stackables become accepted practice. But in contrast, should the Stackables pathway become commonplace in the manufacturing sectors, then MOOCs, while involved, will not be that innovation's prominent or even its most defining characteristic. Finally, right now MOOCs are not deliberately focused on any manufacturing related topic or the industry sector itself although with deliberate intent, they could be; whereas Stackables have had impressive success specifically for

the advanced manufacturing sector. Yet two commonalities cement MOOCs and Stackables together. Each holds relevance unlike anything seen before to ameliorating a major US workforce gap; and each in its own way offers students a new means to obtain academic credit leading ultimately to collegiate degrees and by so doing may lead to a deeper, more symbiotic relationship among employers, colleges, national economies and individual income levels.

6. Conclusion

This paper has sought to reveal that the recognized manufacturing skill gap in the United States, at its heart, is a gap in education, which two educational innovations could help alleviate. As educational innovation after innovation unfolds today, it is entirely possible that at some point and as a cautionary note, the world might witness a value shift. Right now, acquisition of a traditional college degree is at the top rung of career ladder success often equated to higher personal income. In the future, because of innovations such as MOOCs and Stackables, citizens with well-suited and advanced knowledge and skills could emerge who reach the peaks of career achievement by climbing an equally respectable ladder but whose last rung no longer is just the heralded academic degree awarded by the traditional higher education establishment. No doubt traditional and innovative educators would still be required, but how and where they do their work might be changing, especially if the efforts now afoot in the United States to re-create an appropriately skilled and adept workforce for the advanced manufacturing industry sector prove successful.

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4th International Conference on New Horizons in Education

Values orientation approach to the educational process: The temporal dimension

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Abstract

Substantial changes in the Latvian education system have meant a shift from the traditional to the humanistic paradigm. This fundamental transformation notwithstanding, the learner's experience still tends to be undervalued, hence the need to re-examine the value placed on an individual learner in the context of sustainable development. The present article aims to reflect on university students' views about their core life values from a temporal perspective. This qualitative study draws on content analysis of fifty-six essays on the perception of family by bachelor programme students in a regional university of Latvia. Insights from these data are supported by findings from focus group interviews with full-time students taking the courses "Family Pedagogy" and "Social Pedagogy" (N=111). The conclusions highlight the importance of evaluating each learner's knowledge, skills and experience which transforms into self-experience and ultimately enables individuals to set more sustainable aims for their own learning.

Keywords: Sustainability of values; students' view; self-experience; the value approach

1. Theoretical background

The modern-day reality demands flexibility and ability to adjust to the requirements dictated by the market society. It is also essential to understand oneself and to evaluate one's experience in order to become a successful professional. The educational process and its organization at university are always a challenge. Graduates ultimately become key players in the labor market. At tertiary level, the educational process ought to cater for and enhance each learner's abilities, wishes and values. There is an urgent need to re-evaluate the educational process at universities and allow more space for each learner to appraise his or her own unique experience and values. In this regard, Vedin (2011) advocates a challenging subject matter as both didactically and psychologically expedient.

In addition, Vedin (2011) points to a significance of the individualization process at university, that is, the individualization of the educational process to take into account the needs of each learner. Thus, individualization emerges as a way of organizing the teaching and learning process that caters for learners' individual differences in terms of perception, cognitive and mnemonic preferences and character. Moreover, since change is ubiquitous in the modern world, university studies should engage learners in its evaluation in a sense of seeking value and determining the orientation of the latter.

Rohweder and Virtanen's (2009) model of learning for sustainable development confirms the critical importance of shaping the educational process at university in a sustainable way. In this regard, Rohweder and

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Virtanen (2009) emphasize three factors: context, mental aspects and activities as well as underscore re-evaluation of values in terms of temporality as fundamental for sustainability.

Comparison of traditional and humanistic approaches allows for evaluating current changes in education. We are witnessing a shift from subordination to interrelatedness, from monologue to dialogue, from coercion to co-existence in interrelatedness, from control to freedom of choice (Vedins, 2011). A key element of the teaching and learning process is learners' experience which can be interpreted as an amalgamation of knowledge, skills and attitudes derived from personal habit, social convention and national tradition that is being passed from generation to generation (Šteinberga, 2011). Yet, what matters most is self-experience – the knowledge, skills and attitudes that an individual acquires throughout his or her lifetime and appraises and internalizes as personally significant values. Questioning is an indicator which suggests that experience is transforming into self-experience (Šteinberga, 2011).

The above-outlined discussion boils down to a conclusion: the teaching and learning process at university should be evaluative in a sense of accepting the learner as a benchmark and nurturing his or her ability to envision and evaluate sustainable futures.

2. Consistency of values across generations

Transmission of values from one generation to another involves young people's willing acceptance of certain values as personally significant. Voluntarily accepted and internalized values allow for self-regulation of the young. Transmission of family values should be seen as a two-way process: firstly, the child's perception of his or her parent's values and, secondly, acceptance, or rejection thereof (Knafo & Schwartz, 2009). Intrinsic motivation to accept parental values is no longer perceived as a threat to young people's autonomy. Soenens and colleagues (2007) emphasize that parents who support their children's perspective, provide more choice options and freedom and allow their offsprings to act upon their personal values can establish more sincere relations in the family.

In 2013, having received a commission from the Ministry of Education and Science, Excolo Latvia Ltd. conducted a study about the possibilities, abilities and attitudes of youth. The said research reveals that youth consider as significant such values as family and career. In a future perspective, they place major importance on balancing the values of work and family, because youth expectations in both spheres are very high (IZM, 2013). Curiously enough, marital life is not mentioned as a significant value; rather, the research participants tend to prioritize informal partnership (IZM, 2013). In the long run, the findings from this study might contribute to the debate about the growth of non-registered families (IZM, 2013).

The present study explores the content of values in the temporal context. In terms of philosophical underpinnings, it draws on psychoanalytical humanism and rests on an assumption that love is among the most significant family values to be considered. Love includes basic elements such as care, responsibility, respect and knowledge (Fromms, 2009). Hence, the teaching and learning process at university should give students opportunities to analyze different problem situations, determine the values that underpin them and appraise these values in terms of orientation and temporality, keeping in mind that love is the supreme value and the very essence of humaneness.

3. Research methodology

3.1. Socio-demographic information about the respondents

The total of one hundred and eleven (N=111) second- and third-year Bachelor program students took part in this study, including 42 males and 69 females. The participants' age ranges from 21 to 25. As an assignment in the study course "Social pedagogy," the students were asked to write an essay about family values. Afterwards, they were encouraged to pinpoint key family values and appraise them in terms of temporality (past, present and

future). Finally, the students were invited to participate in a focus group interview which enabled them to re-examine the content and orientation of their values.

The research was conducted in 2012/2013.

The participants were questioned for personal details such as gender, age, education, professional occupation and family characteristics. They were then invited to write down and rank ten most significant values that dominate their values systems and ten values that they would want to take as cornerstones for building their own families. During subsequent focus group interviews the research participants were encouraged to share their opinion and discuss how they internalize family values as well as which they consider as the most significant values for building their own families and bringing up their own children. The ultimate purpose was to identify consistencies in the transmission of family values.

Thus, the emphases of this study were, first, how Bachelor students formulate the values systems that they live by at present and, secondly, which values they consider as most significant underpinnings for their family life in the future. The focus is on how the values of their parents affect the students' moral development and which values prevail over time.

3.2. Research methods

The study aims to explore how university students view family values and which are the most essential values that prevail over time. The study rests on the following research methods: essay, survey and focus group interviews.

Essay may be defined as a relatively brief piece of creative writing that allows the author to express his or her views and demonstrate a subjective attitude towards an issue of concern. The students were asked to write down their opinions about the values they believe to have inherited from their families. Subsequent analysis of the essays was focused on uncovering the core values which the students have inherited from their families and to pinpoint the values which the students want to build their own families around.

Survey. The students were asked to write down ten basic values on a time line: past, present and future. This allowed for identifying recurrent values and establishing whether the students consider those as important.

Focus group interview. This article draws on data from six focus group interviews about the values that students consider sustainable. The students were interviewed in six groups with average interview duration of one and a half hours. The findings from the focus group interviews are expressed in thesis statements.

3.3. Limitations of the study

The sample size and nature preclude abstract generalization. Making more definitive conclusions warrants extensive further research, such as longitudinal studies or in-depth interviews to gain a more profound understanding of the values transmission processes in the families of young people from self-reported data. In addition, subsequent investigations could not only rely on self-reported data but also make use of some graphic research instruments.

4. Research findings

The data suggest that the students, family experience notwithstanding, name only positive values, such as ability to admire and be proud, ability to find joy in one's life, ability to keep secrets and ability to be diligent. Analysis of the 2553 values named by the students allowed for grouping them in several categories, thereby reducing the number of values to 251. The analysis of values in terms of temporality reveals 89 values inherited from parents, 94 values describing current family values and 68 future-oriented values. The analysis of the

content of values points to the social, cultural and environmental aspects of the latter. The economic aspect was not mentioned in self-reported data gained from the students.

According to Schwartz (1992), the more imbedded an individual's set of values is, the least likely he/she is to experience a conflict between opposing values; the more unstable one's value system, the more possibility for a clash of values.

Key findings from essay and survey data, summarized in Tables 1 and 2, suggest that the students highlight such values as support, diligence, kindness, faith, gratitude, listening, independence and love of work. All these values appear in the contexts of past and present but are conspicuously absent from the research participants' visions of the future. It may be that they are taken for granted, seen as givens in the present but with no relevance to the future. It appears that these values are perceived by the students as meaningful only for appraisals of the present and past experiences.

Another curious tendency in the data pool concerns the values for the future (Table 2), such as culture of work, autonomy, flexibility, future-oriented vision and real rather than virtual society. These values appear to lack the dimensions of past and present. The data evoke reflection about the students' visions of the future and its inherent challenges. For instance, culture of work and flexibility are also acknowledged as values for the present. This may stem from the specifics of the students' perception of time – for them the future does not begin tomorrow but at a more distant point of graduation or taking the first steps in one's profession.

Table 1. Temporality of values: The past and the present

	Values of the past and present	Values of the future
Personal/Cultural aspect	Support, diligence, kindness, hope	x – not mentioned
Social aspect	Sharing with others, ability to listen	
Environmental aspect	Independence, love of work	

The data suggest a number of values that appear relevant only with regards to the future.

Table 2. Temporality of values: The future

	Values of the future	Values of the past and present
Personal/Cultural aspect	Respect of the individual. Culture of work. Freedom of action. Independence	x – not mentioned
Social aspect	Flexibility. Future-oriented thinking. Courage	
Environmental aspect	Real society	

Analysis of the content of values in the temporal perspective suggests there are two distinct values in the survey data, namely, respect of a human being and patriotism. These values are mentioned as existent in the past and as desirable in the future, though not referred to in descriptions of the present state of affairs. This tendency warrants a more profound exploration than was possible during focus group interviews.

Allusions to sustainability imply it is a dominant value in the students' values orientations. In their questionnaires, the students report such values as love, respect, responsibility and health, which, essentially, can be considered fundamental values. These values can be seen as universal and eternal. Through socialization in their families, the students have developed their own attitudes and systems of values. Nevertheless, one cannot disclaim the influence of education on the students' deeper understanding of intergenerational connectedness and responsibility.

Analysis of focus group data confirms the enormity of the parents' role in preserving and transmitting values to their children. Therefore, it is essential that children have both parents, even if their marital status is not formally settled.

Parents are responsible for preservation of certain norms and values. Due to the generation gap, teacher values may differ from those of their learners. Values that are relevant only to the past and present are not reflected in the students' visions of the future, which means that the future is quite vague and can be seen as posing a new challenge.

For the students, sustainable values include flexibility, profound understanding of culture, and hope that the future holds possibilities for real rather than virtual communication.

The students desire to be respected, although, conflictingly enough, they acknowledge having trouble with openness to diversity.

The students wish to see their children as patriots even though they are not positive that they should remain in this country in the long run. In most cases, financial and material factors are being considered as domineering.

5. Conclusion

A proper family is able to create a safe, positive and supportive environment for all its members to develop their potential. Sustainable families can be maintained by reinforcing intergenerational connectedness in value transmission. Healthy and sustainable families transmit to the young generation accepted values, attitudes, behavioral patterns and expectations about parenting, relationships and decision making.

Strong families maintain intergenerational connectedness and support networks. A sustainable family is a critical national resource. Families should offer a safe place where young people could feel comfortable and secure, and find support for facing the challenges of the day.

The study suggests some evidence that internalized family values of young people are not necessarily identical to their parents' personal values. Intergenerational differences between perceived family values and young people's personal values are identified in two aspects: openness to change or modernity (readiness to take risks, gain new experiences and face change) and conservation (tradition, security, order).

In order to transmit values, parents need to build a caring family environment where young people's autonomy is respected. Universities need to educate the young about how to attribute value and choose among alternatives as well as how to translate knowledge and skills into practice.

Thus, the study process at university should engage learners in re-evaluation of values and exploration of their orientation in terms of temporality, because the pursuit of sustainability is not limited to aspiring for personal aims; it also subsumes preservation and transmission of what is socially accepted as valuable to the next generation.

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Variation in early growth, canopy temperature, translocation and yield of durum wheat (*triticum turgidum* l. Var. *Durum*) under semi arid conditions

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Abstract

The investigation was carried on the experimental site of the Field Crop Institute Agricultural Farm located near the town of Sétif (Algeria). The objective was to investigate the differences in developmental rate, heat status and yield between four durum wheat (*Triticum turgidum* L. var. *durum*) genotypes. The experiment was laid down in a randomized complete block design with three replications. Data were collected on canopy temperature, relative growth rate, green flag leaf area duration, assimilates translocation and grain yield. The results indicated that Waha and Boussalam, due to their fast early growth rate, accumulated significantly more above ground biomass at the juvenile, reproductive and grain filling growth phases. They achieved high dry weight of spikes m⁻² at heading and at physiological maturity. Grain yield varied from 194.8 g/m² in MBB to 286.7 g/m² in Waha. The genotypes diverged also for the amount of assimilates transferred to the grain which varied from 26.6 to 39.5% of the final grain yield. These results indicated that selection of faster early growing, short cycle genotypes, bearing smaller leaves should be favoured for the high plateaus of eastern Algeria.

Keywords: *Triticum turgidum* L. var. *durum* - CT- Translocation - early growth rate- yield.

Introduction

The Eastern high plateaus of Algeria have a continental Mediterranean climate with variable rainfall, ranging from 168.7 to 517.3 mm, and 56 to 88% of which falls in the cold period, extending from October to March (Chenaffi *et al.*, 2006). Water remains the main factor limiting cereal crop production even though cold, late spring frost hazard and terminal heat are also frequent (Bouzerzour *et al.*, 1994; Annichiarico *et al.*, 2005; Mekhlouf *et al.*, 2006). Durum wheat is grown on the high plateaus, in a cereal- livestock farming system, in which straw and wheat residue are used as sheep fodder. Grain yield obtained is highly variable and low, compared to what is achieved in the neighboring countries (Annichiarico *et al.*, 2002; Bahlouli *et al.*, 2005). High biomass at anthesis minimizes yield reduction under terminal heat and drought stress (Roseille and Hamblin, 1981; Simane *et al.*, 1993; Fellah *et al.*, 2002). Canopy temperature is an efficient method for a rapid monitoring of whole plant response to water stress. Canopy temperature variation provides clues for crop water status and yield performance under stress (Fischer *et al.*, 1998). Plant ability to remobilize stem reserves and photosynthesis activity of flag leaf, glumes and awns to support grain filling, are adaptive characteristics in high yielding

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genotypes, under drought stress (Blum *et al.*, 1999). Yield improvement under stress conditions therefore must combine the high yield potential and specific factors, which are able to protect the crop against reductions due to different stresses. The objective of the present investigation was to compare growth pattern and yield formation under semi arid conditions in a set of divergent genotypes of durum wheat (*Triticum turgidum* L.var.durum).

Material and methods *Experimental details and crop husbandry*

The experiment was sown, in mid November, at the Field Crop Institute Experimental Farm, located 5km south of Setif town, on the eastern high plateaus of Algeria (1081m asl., 5°21'E, 36°9'N) during the 2004/05 cropping year. Four durum genotypes (*Triticum turgidum* L. var. durum), namely

Mohamed Ben Bachir (MBB), Waha, Boussalam and Adamillo/Duillio//Semito (ADS) were chosen on the grounds of their suitable agronomic characteristics. They were laid down in a randomized block design with three replicates in plots of 6 m² (5m long x 1.2m wide). Seeding rate was 250 viable seeds m⁻². Before sowing, the trial was fertilized with 100 kg ha⁻¹ of triple super phosphate 46%, and with 100 kg ha⁻¹ of urea 35% were applied at the onset of jointing, Zadoks stage 31, in the month of March 2005 (Zadoks *et al.*, 1974). Weeds were controlled chemically with GranStar [*Methyl Triberunon*], at 12 g ha⁻¹ rate.

Results and discussion *Dry matter accumulation, growth rate, and leaf area*

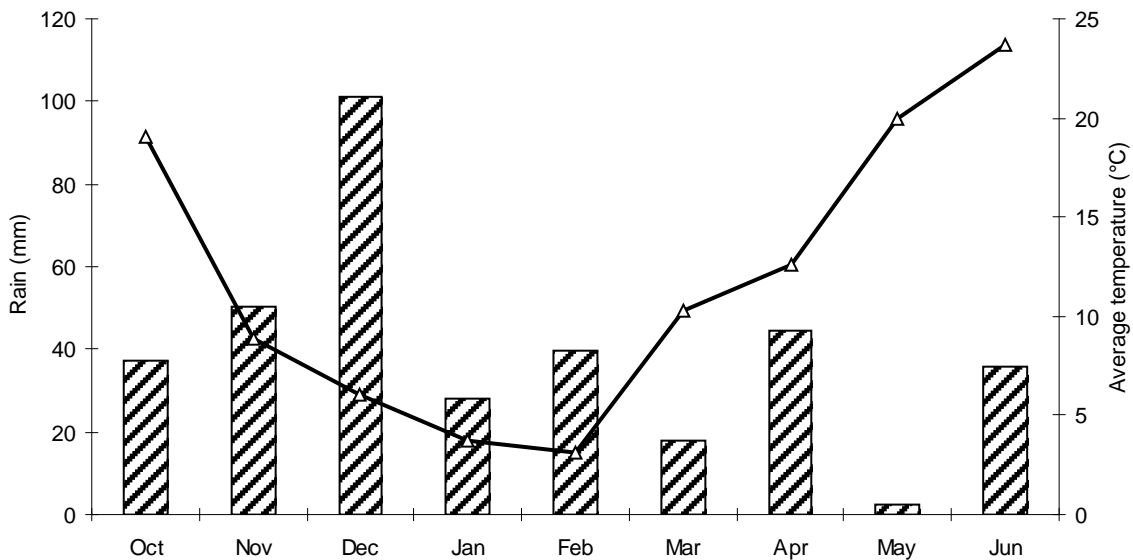


Figure1. Accumulated monthly rainfall (dashed bars) and mean monthly temperature (line) measured during the course of the experiment

Table –1- Spikes dry weight (SpDW), above ground dry weight (BIO), relative growth rate (RGR), leaf area (LA) and assimilation net (A_{net}) measured during the juvenile, reproductive and grain filling growth phases in the 4 genotypes

Genotype	SpDW (g m ⁻²)	BIO (g m ⁻²)	RGR (mg g ⁻¹ d ⁻¹)	LA m ²	A_{net} g d ⁻¹ m ⁻²
Jointing					
Boussalam	--	91.5	732.0	--	--
Waha	--	126.0	1032.8	--	--
MBB	--	68.8	513.4	--	--
ADS	--	69.8	524.8	--	--
Heading					
Boussalam	185.6	665.0	149.2	4.0	3.41
Waha	172.1	727.3	110.9	3.5	3.99
MBB	120.8	553.1	149.4	2.2	4.67
ADS	157.5	585.2	160.5	3.4	3.30
Physiological maturity					
Boussalam	339.7	927.4	10.3	--	2.1
Waha	346.7	951.7	6.6	--	2.0
MBB	296.5	920.8	9.2	--	2.9
ADS	273.8	804.0	4.1	--	0.7
Lsd _{5%}	21.7	44.5	37.0	0.55	0.78

The amount of rainfall accumulated during the cropping season reached 357.0mm, with 71.9% received in the autumn- winter period. The ambient air temperature rises sharply from March up to the end of the crop cycle, in June, hastening crop growth. May was unusually dry and hot (Figure 1). The analysis of variance of dry matter indicated significant genotype and sampling date effects, suggesting inherent variation among genotypes in growth pattern. Biomass yield varied from a low value of 68.8 g m⁻² measured in MBB at the jointing stage, to a high value of 951.7 g m⁻², measured in Waha at physiological maturity (Table 1). Waha and Boussalam accumulated significantly more above ground biomass at the juvenile, reproductive and grain filling phases, compared to MBB and ADS (Table 1). Waha and Boussalam realized also a high dry weight of the spikes

produced per unit square meter, at heading and physiological maturity. This is suggestive of a better biomass partitioning, while MBB and ADS presented low dry weight of spikes m^{-2} , at both growth stages (Table 1). From emergence to jointing, the relative growth rate in Waha reached $1032.8 \text{ mg g}^{-1} \text{ day}^{-1}$ and varied from 513.4 to $732.0 \text{ mg g}^{-1} \text{ day}^{-1}$ in MBB, ADS and Boussalam. A sharp overall decrease in the RGR was observed in all genotypes, as plants grow older; even though the reduction was more severe in Waha than in Boussalam, MBB and ADS during the reproductive phase (Table 1). ADS, Waha and Boussalam developed a significantly larger leaf area per square meter compared to MBB, but no significant difference existed among genotypes in the assimilation rate (Table 1).

These results indicated that Waha and Boussalam grow faster early in the season, accumulating significantly more biomass at heading and maturity, and achieving a better dry matter partitioning. MBB, ADS were characterized by a slow growth rate, and a relatively low dry matter accumulated at heading and maturity. The slow growth rate in MBB and ADS was explained by the vernalization requirement and photoperiodic sensitivity. MBB and ADS behaved as semi winter type while Waha and Boussalam behaved as spring- type varieties, with no vernalization requirement and moderate or no response to photoperiod. MBB was selected from a local landrace originating from a high altitude area (Laumont and Erroux, 1961), while ADS is an advanced breeding line introduced from Italy (Bahlouli *et al.*, 2005). Both varieties exhibited a prostrate growth habit associated with slow growth rate, early in the season. Waha and Boussalam are Icarda's selections, bearing the earliness characteristic to avoid terminal drought and heat stress of the target mega environment represented by the West Asia and North Africa region (Slafer *et al.*, 1999).

The results of this investigation showed that late material, because of its vernalization and photoperiodic requirements is not able to grow faster and to make the best use of the soil moisture available early in the season, while short cycle genotypes, such as Waha and Boussalam do possess this ability because of their relative insensitivity to vernalization and to photoperiod. They developed a rapid leaf area early in the season, shading the soil surface, restricting water lost by evaporation, maximizing transpiration and improving the transpiration to evapotranspiration ratio. These results are in agreement with Siddique *et al.*, (1991) who mentioned that high above ground biomass could be achieved through faster early growth. Slafer *et al.*, (1999) suggested that increase in aerial biomass could be achieved through a longer cycle (under favourable environments), higher photosynthesis activity per unit leaf area or faster early growth. Simane *et al.*, (1993) and Villagas *et al.*, (2001) explained that genotypes, with the ability to grow faster early in the season, are able to avoid terminal drought and heat stress in Mediterranean environments *Green flag leaf area duration, canopy temperature, translocation and yield*

- Table 2. Flag leaf green area (GFLA), senescence rate (V), Flag leaf area duration (FLAD), grain yield (GY), translocation (T%), yield components, plant height (PHT), number of days to heading (DHE) and canopy temperature of the four genotypes

Genotypes	ADS	MBB	Boussalam	Waha	Lsd _{5%}
GFLA (cm ² , H)	16.5	13.6	12.7	11.5	2.5
GFLA (cm ² , H+10 d)	10.9	12.0	10.9	9.8	-
GFLA (cm ² , H+20 d)	4.9	7.2	5.8	4.9	-
V (cm ² d ⁻¹)	-0.5957	-0.0318t	-0.0340t	-0.0326t	-
FLAD (d)	28.4	29.2	27.3	26.5	-
GY (g m ⁻²)	213.0	194.8	252.0	286.7	35.6
T (% of GY)	29.9	39.5	35.4	26.6	-
Spikes (m ⁻²)	330.0	326.7	370.0	446.7	45.8
TKW (g)	44.7	44.7	43.3	47.4	3.3
PHT (cm)	74.3	96.0	62.0	55.4	7.5
DHE (d)	133.0	136.0	122.0	120.0	4.5
CT (°C, H)	28.7	28.3	27.8	29.3	-
CT (°C, H+10 d)	31.3	28.7	28.9	30.5	-
CT (°C, H+20 d)	31.3	30.0	31.5	31.6	-

- H = Heading stage, Spikes = number of spikes m⁻², TKW= 1000- kernel weight, DHE= number of days from January 1st to heading, d= days.

Waha developed a small flag leaf area of 11.5 cm² while ADS has a larger flag leaf with 16.5 cm². Ten days after heading, the green flag leaf area was reduced by 33.9, 11.7, 14.1 and 14.7% in ADS, MBB, Boussalam and Waha, respectively. The relative reduction in the green flag leaf area reached 70.3, 47.0, 54.3 and 57.3% in the same genotypes, 20 days after heading (Table 2). Flag leaf of ADS senesced a faster linear rate of $-0.5957\text{cm}^2\text{day}^{-1}$. The senescence rate of the other genotypes varied with time, having a quadratic form. Flag leaf area duration varied from 26.5 days in Waha to 29.2 days in MBB (Table 2). Grain yield varied from 194.8 g m⁻² in MBB to 286.7 g m⁻² in Waha. Stem reserves remobilization varied from 26.6 to 39.5% of final grain yield in Waha and MBB which represented the extremes (Table 2). Waha and Boussalam produced significantly higher number of spikes m⁻² compared to MBB and ADS, Waha achieved a high 1000- kernel weight but had a short stem. Both Waha and Boussalam were early to head. MBB and ADS were relatively late to head and taller. No significant differences were noted among genotypes in the crop canopy temperature (Table 2). The rapid change in the green flag leaf area, observed in the present study, was suggestive of strong effect of terminal drought and heat stress on photosynthesis activity. ADS was the most sensitive to photo inhibition, accusing a rapid leaf senescence while MBB was, relatively, the least sensitive. In fact flag leaf blade, glumes and awns are the principal source of photo assimilates imported by the filling grain. Araus *et al.*, (1993) mentioned that an increase in photosynthesis activity, under drought stress, is often observed in genotypes with smaller leaves, which are less sensitive to dehydration. Smaller leaves increase fitness in dry conditions as their decreased surface area to volume ratio inhibits desiccation. When drought is experienced at later developmental stages, selection should then favors genotypes harboring smaller leaves. Waha, Boussalam and MBB were characterized by a small flag leaf area, in comparison to ADS which exhibited a larger flag leaf area. The differences among the tested genotypes in green flag leaf duration were not high enough to explain the observed grain yield differences, but smaller leaves which last longer are best suited to achieve a relatively high yield than larger leaves which senesce rapidly. Waha and Boussalam realized the best grain yield due to their better above ground biomass partitioning and to their post anthesis photosynthesis activity. MBB presented a tolerance to photo inhibition, but this cultivar achieved a low grain yield, because of its low number of culms bearing spikes and low biomass accumulated at heading. Waha presented a relatively high 1000- kernel weight, suggesting that this genotype avoided terminal heat and drought stress. The contribution of the stored reserves laid down in the stem to the filling grain, in Waha was moderate, (26.6%) due probably to a relatively high post- anthesis photosynthesis activity. Boussalam relayed, much more, on the stem reserves to fill grains, and its low 1000-kernel weight seems to indicate that it

did not fully avoid terminal stress. Wardlaw and Moncur, (1995) reported that grain filling, in drought tolerant genotypes, relies on stem reserve remobilization in case where the last photosynthesizing organs senesce rapidly, so the dependence on stored assimilates for grain filling increased as the post anthesis water stress intensity increased. These were the cases of the cultivar MBB and to a lesser extent of ADS. Giunta *et al.*, (1995) reported a contribution of stem reserves remobilization to the grain, varying from 10 to 70%, depending on genotypes and environments. Bingham *et al.*, (2007) reported that the contribution of stored stem reserves varied from 11 to 45% in barley, while Cruz- Aguado *et al.*, (1999) reported a range of 10 to 80% depending on the severity of the stress. The contributions of stem reserves, to the filling grain reported in the present study, were within this range.

Conclusions

In the eastern high plateaus, the crop growth period is restricted, at the beginning of the season, by lack of moisture, and at the end of season, by water deficits and high temperature stress. These stresses leave little scope for lengthening the period of crop growth in order to increase dry matter production and yield. However this can be achieved through increased growth rate early in the season when soil moisture is available and can be utilized. In the present experiment genotypes differed little in the number of days to heading but do in the ability to grow faster early in the season. Waha and Boussalam exploited better the available resources early in the season; they matched a better phenology to the environment. This developmental advantage contributed to their avoidance of terminal heat and drought stress and to the expression of high grain yield. So, approaches to select the appropriate cultivar to the target environment, represented by the Eastern High Plateaus of Algeria, should be based on the synchronization of the crop phenology to match seasonal rainfall distribution pattern, early growth, sizeable stem reserves remobilization, smaller leaves and avoidance of terminal heat and drought stress, as mimicked by Waha and Boussalam cultivars in the present study.

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Vietnamese immigrant women's learning in Taiwanese higher education

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Abstract

According to a sociocultural approach to adult learning, this study aims to explore the learning experiences of Vietnamese immigrant women in Taiwanese higher education. Based on the interviews of 11 married Vietnamese immigrant brides, it was found that all of the immigrant women emphasized the importance of pursuing higher education in Taiwan. With permission from their husbands, these immigrant women participated in higher education to develop the human and cultural capital to fulfill their expected responsibilities both in their homeland and in their host societies and to combat discrimination from Taiwanese. In the Taiwanese-centered higher education, immigrant wives continuously worked hard to prove themselves competent and negotiate their voice and cultural identity. Participating in higher education and even obtaining a Taiwanese master's degree empowered most of these women, gaining self-confidence and a voice in the family and facilitating their settlement into Taiwanese society. For these female immigrants, both their culture and early socialization in Vietnam and sociocultural life experiences in Taiwan affected their learning in their pursuit of Taiwanese higher education.

Keywords: Immigrant women; Higher education; Learning ; Sociocultural contexts

1. Introduction

Since the 1990s, socioeconomically disadvantaged men in wealthier Asian countries have sought spouses overseas, whereas women in less economically developed countries have often move abroad in pursuit of a better life (Bélanger, Lee, & Wang, 2010). For two decades, a rapidly increasing number of immigrant women have arrived in Taiwan from Vietnam through commercially arranged marriages. (Ministry of the Interior, 2013). For female immigrants, participation in learning and higher education in host countries, which is associated with possibilities for empowerment, upward social mobility, and economic advancement through participation in labor market is particularly important for career development (Ghosh, 2000). Therefore, drawing on a sociocultural approach to adult learning, this study aims to understand the learning experiences among Vietnamese immigrant women in Taiwanese higher education.

2. Methods

2.1 Participants

Eleven Vietnamese immigrant women were invited to participate in this study using a snowball sampling. All of them migrated to Taiwan through marrying Taiwanese men and had completed or had been enrolled in a

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formal graduate or undergraduate program in a university for at least two years in Taiwan. The informants ranged in ages from 27 to 48 years, with the length of time residing in Taiwan ranging from 5 to 18 years. They started to pursue Taiwanese higher education after they had moved to Taiwan for an average of 6.2 years. In Taiwan, of them, two had been working on bachelor's degrees for two or three years, six had Taiwanese master's degrees, and four had Taiwanese master's degrees and had been working on doctoral degrees. Of the participants, eight had met their husbands through a marriage broker while four had free-selection marriage. Except for Hilary, who was pregnant, all of them had at least one child.

2.2 Data collection and analysis

Data were collected through semi-structured, in-depth interviews. All of the interviews were conducted in Chinese, voice-recorded, and subsequently transcribed. After the transcription, the interview texts were analyzed using within- and cross-case analyses. The process of member checking (Denzin & Lincoln, 2000) was used to guarantee the trustworthiness of the research analysis.

3. Results

3.1 Higher education in Taiwan as Human and Cultural Capital

3.1.1 Embracing the instrumental value of education

All of these women emphasized the importance of pursuing education within the Vietnamese society and within their families. Learning to value education was rooted in these women's early socialization in their homeland. In the Vietnamese society, because of Confucian culture which has emphasized learning, education has been valued as the key to individuals' upward social mobility and economic stability and symbolized their success and achievement in the society. Additionally, in 1970s, most of the people in Vietnam were economically disadvantaged and had to lift themselves out of poverty only through obtaining education. Therefore, the parents of these Vietnamese women usually held strong aspirations for their children to obtain as much education as possible, sometimes at great sacrifices. However, women's education, while encouraged and emphasized, held a lesser value than men's both in terms of its priority and in the economic support women receive to continue their education within the families because of men's central roles as heads of the family in the Vietnamese patriarchal family system. As Carol noted, "Like most of the Vietnamese, my parents always believed that obtaining education was the only way to find the room at the top of the society. Although my parents encouraged the children to study hard, at first they just supported my brothers to continue the pursuit of education because my family was too poor to afford the educational expense of all the children and because my parents preferred sons to daughters like most of the Vietnamese. However, because my brothers quitted studying, my parents just encouraged me to further the university studying. In order to pay my university tuitions, my father even sold the only valuable asset of my family and his vehicle of work, the motorcycle."

3.1.2 Combating Taiwanese discrimination against immigrant women and obtaining better employment

The participants all felt that in the Taiwanese society, they were materialized and stigmatized because of their transnational marriage and national background. "In Taiwan, the media usually portrays immigrant women as illiterate ones from countries with backward economy, victims of domestic violence, social problem makers, and even the 'runaway brides with husbands' money.' Being a marriage immigrant woman from so-called developing country, my motivation to migrate to Taiwan was stereotyped as similar to that of an Asian mail-order bride or an immigrant labour, who people believe, would be willing to pay any price to make money in Taiwan. Some

Taiwanese believed that immigrant women come to Taiwan just for husband's money or for earning money by working on sex trade," Doris said angrily. "Some of my neighbours even forbade their children to play with my daughter. Even the school teacher of my child also looked down on me and thought that I was too illiterate to read the parent-teacher communication note," Flora noted.

Because within Vietnamese families, women received the same encouragement as men to seek employment to support the household economy (Barbieri & Bèlanger, 2009) and because a shortage of income within the Taiwanese family was very stressful for immigrant women, most of the women pursued jobs after migrating to Taiwan. However, most of these women felt marginalized, excluded, and discriminated in the Taiwanese workplaces. Due to social stigmas against marriage immigrants, differences in labour market networks, and the lack of recognition of immigrant women's foreign credentials and work experiences, these highly educated, skilled female immigrants often found low-pay, entry level jobs with poor work environment, discriminatory practices, and exploited benefits, which made it difficult for them to retain the job.

3.1.3 Immediate families' permissions

Because transnational marriages have contributed to the lack of a trusting marital relationship, many Taiwanese husbands tend to force immigrant brides into behaviours within the limited normative expectations and social contacts and disapprove the immigrant brides' furthering new learning lest they get smarter, acquire some "bad habits", and then leave home. However, these women in this study thought that their motivation for enrolling in Taiwanese undergraduate or graduate study primarily originated from their husbands' supports and promise of taking up the household and childcare responsibilities. These participants felt that compared to other Taiwanese men, their husbands appeared less patriarchal and more egalitarian. Most of their husbands respected these immigrant women's decision of furthering learning and expected their wives to be more integrated into Taiwanese society through obtaining advanced education.

3.2 Negotiating their space both in Taiwanese higher education

3.2.1 *Working much harder to prove themselves competent*

All of these women highlighted that they had been studying much harder than their counterparts to keep up with the peers and to prove themselves competent while being enrolling in higher education in Taiwan. Thus, most of them had been proud of winning scholarship. The intensive advanced curriculum in higher education with extensive terminology made it difficult for the participants with basic Chinese proficiency to initially understand the instruction and meet the professors' requirements for assignments. Thus, most of these women in this study felt that as immigrant women, they had to continually prove themselves competent to survive in the Taiwanese higher education institutions.

Except for one, all of these women in this study felt that few of the faculty were sensitive to their particular living experiences and that the delivery of the instruction did not consider their cultural difference that these women students faced. These women had minimal relationships with and supports from the faculty, except for oral encouragement. However, almost all of the participants did not report feeling marginalized and accepted the nationality-blind instruction and interaction as a given in the higher education classroom because they thought that they were competent to manage their learning and they could have some relief and resilience in the margins.

3.2.2 *Negotiating voices and identity*

All of the participants agreed that at first, speaking in class was one of the greatest challenges that they confronted in the Taiwanese undergraduate or graduate classrooms because of their different accent, their early schooling, their unfamiliarity with the Taiwanese classroom cultures, and the lack of understanding the professional instruction. Thus, in the beginning, these women were silent learners. However, as these participants improved their Chinese proficiency, gained knowledge about the atmosphere of Taiwanese higher education class, and acquired more professional learning as well as the Taiwanese media began to praise some of these women's pursuit of higher education in Taiwan, their self-confidence and self-identity improved over time. These participants increasingly realized that silence in class often made individuals ignored and marginalized in the learning process. Because of the power of voice in the demonstration of knowledge and competence, based on their increased self-confidence and self-identity, most of the participants continually drove themselves to negotiate the ideas of voice to improve their visibility in class. Additionally, some of the participants even purposefully took the courses or made the presentation relevant to their cross-border backgrounds and share their experiences in class in order to facilitate the positive visibility of immigrant women and their home country, which in turn would enhance their understanding of their homeland and then enrich their identity. "After getting used to the culture of Taiwanese graduate study, I became more confident. I expected people to understand immigrant women and my homeland more, which was one of my motivations for pursuing Taiwanese higher education. Thus, I attempted to grapple the opportunities to present the reports concerning my transnational immigration experiences or the country of my origin... I also intendedly took the courses in which my background as an immigrant woman could be used as a reference point for discussing.

3.3 **Getting self-empowerment with ongoing settlement into Taiwanese society**

Persevering with completing the higher education programs, winning a scholarship from the universities, or even obtaining Taiwanese master's degrees, which required achieving Chinese proficiency, professional competency, and a certain level of critical thinking, and overcoming difficulties, were significant achievements for these Vietnamese women. In addition, completing the Taiwanese higher education and receiving the academic certificates made it much easier for most of these female immigrants to obtain jobs of better salaries than before, which increased their income and benefitted the family finances. Furthermore, most of the women also had more confidence in their parenting ability as they received more higher education in Taiwan with understanding Taiwanese educational system more and developing professional competency. These achievements contributed to the participants' self-empowerment, including positive feelings of self-worth, self-growth, and economic independence.

Participating in Taiwanese higher education and even obtaining academic degrees also contributed to these immigrant brides' integration and settlement into Taiwanese society. Most of the women gained a strong voice that encouraged their husbands and in-laws to listen to them in family affairs through their contributing more to the family economics and their Taiwanese higher education experiences. As Jessica noted, "After completing the Taiwanese graduate study and getting a better job of more income, the relationship between my mother-in-law and me improves. My husband and mother-in-law often ask for my opinions about family affairs. They even often show off my master's diploma to their friends." Additionally, most of the women had gradually adapted to, understood, appreciated and even identified Taiwanese society and culture more as they participated in Taiwanese higher education even some Taiwanese still had discriminated against marriage immigrant women from south-eastern Asia. Notably, except for Amy, all of the women had never thought about applying for an Taiwanese ID card although they understood the importance of an ID card and they got more integrated into

Taiwanese society. As Doris highlighted,” Even though I like Taiwan very much, but I am still Vietnamese. I have to preserve my original nationality that is my root and pride.”

4. Conclusion

Based on a sociocultural approach to adult learning, this study aims to explore the learning experiences of Vietnamese immigrant women in Taiwanese higher education. Based on the interviews of 11 married Vietnamese immigrant brides, it was found that all of the immigrant women emphasized the importance of pursuing higher education in Taiwan. With permission from their husbands, these immigrant women participated in higher education to develop the human and cultural capital to fulfill their expected responsibilities both in their homeland and in their host societies and to combat discrimination from Taiwanese. In the nationality-blind higher education, immigrant wives continuously worked hard to prove themselves competent and negotiate their voice and cultural identity. Participating in higher education and even obtaining a Taiwanese master’s degree empowered most of these women, gaining self-confidence and a voice in the family and facilitating their settlement into Taiwanese society. For these female immigrants, both their culture and early socialization in Vietnam and sociocultural life experiences in Taiwan affected their learning in their pursuit of Taiwanese higher education.

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Views and insights of elementary teacher candidates on sound-based sentence method (case of Pamukkale University)

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Abstract

This study aims to identify and evaluate elementary teacher candidates' views and insights on sound-based sentence method in teaching basal reading and writing, and their competency related to this method. Participants were 3rd and 4th year 197 students studying elementary education at Pamukkale University. An open-ended survey which was developed by the researchers was used to investigate the teacher candidates' views on sound-based sentence method. While developing the survey, the teacher candidates' opinions were taken into account which was followed by expert opinions. The reliability of the survey was calculated by the help of a percentage of agreement formula. For data analysis, open coding method was employed. The qualitative data gathered through the survey were typed and exposed to content analysis. The data were read by the researchers elaborately and the codes were revealed. Related codes were then grouped under certain themes based on which interpretations were made. To support these interpretations, quotations and the characteristics of quoted participants were provided. The results revealed that the teacher candidates reported to have sufficient theoretical knowledge on sound-based sentence system, but also mentioned that they could encounter various problems in implementation. They also argued that these problems could be overcome by the help of practicum and professional experience while they presumed that other problems would also arise in teaching sounds and finding sample vocabulary during basal reading and writing instruction.

Key Words: Sound-based sentence method, elementary teacher candidates, teaching basal reading and writing, qualitative research.

1. Introduction

Due to information age, individuals need to have broader background knowledge. Accessing information does not seem to be enough, individuals should also read, understand and internalize the information they read. For participating in the society and personal development while falling in step with the information age, their reading and writing competencies should be high (Ontario, 2003). In modern societies, individuals moving up in their field of interest and taking important positions is only possible by having advanced reading and writing skills because they cannot reach the desired level of knowledge without reading. Similarly, without writing, they cannot share that knowledge (Çelenk, 1999).

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The profile of individuals that the society needs changes in a way to maximize the expectation from the education system. In this decade, an educated person is expected to keep pace with the change, be an entrepreneur, work in collaboration with other effectively, have the skills for developing himself/herself constantly, and know how to learn. From this perspective, “educational systems should extend across the limits of traditional understanding of education and meet the needs of the society with a ‘life long learning’ approach (MEB, 2006a, p. 34). With the changes in modern society, being literate has a greater importance and is also seen as an indicator of contemporary development. As also stated by Çelenk (2005, p. 109), today, being a functional member of the contemporary society, organizing their work and life conditions, being independent and participant, and having a modern world view are only possible by being literate.

Basal reading and writing instruction include all the practices in the process of being literate and reaching a certain level (Yeleğen, 1977). It is not a simple process. Not only because it is complex, but also vitally important that there have been a lot of discussions on the most efficient method to teach basal reading and writing, and the best strategy to apply it (Martin, Lovat, Purnell, 2007, p.4).

In teaching basal reading and writing, the method that would be used is quite important. As for the 2004-2005 academic year, the Ministry of National Education changed the teaching method used in basal reading and writing with the new Turkish teaching curriculum, and preferred sound-based sentence method instead of analysis method. In sound-based sentence method, as can be inferred from the name, the teaching starts with sounds. At first, by constructing students’ preliminary knowledge, teacher makes them feel the sounds. This is followed by combining sounds to form syllables. And then, syllables form words, words form sentences.

There have been various studies addressing the use of sound-based sentence method. Güneş (2005) argued that this method was suitable for the sound structure of Turkish language. Similarly, Turan (2010) reported that elementary teachers found suitable for ‘recognizing letters and sounds’, ‘starting reading and writing earlier’, ‘students learning reading and writing easier’ and ‘enhanced individual learning’.

On the other hand, in their study which was conducted in the province of Giresun, Durukan and Alver (2008) concluded that the in-service training that the teachers take related to sound-based sentence method is not enough. Bilir (2005) also argued that sound-based sentence method slowed up the students’ reading and was not appropriate to their development.

In their study, Tok, Tok and Mazi (2008) stated that this method reduced the time needed to start reading, however, eased down meaningful and speed-reading. Koç (2012) revealed that students having learned reading and writing through sound-based sentence method could not construct meaningful sentences in writing. Similarly, Baydık and Kudret (2012) enhanced the reading fluency, but decreased the reading speed.

The aim of the present study is to identify and evaluate elementary teacher candidates’ views and insights on sound-based sentence method (SBSM) in teaching basal reading and writing, and their competency related to this method. Based on this aim, the study addresses the following questions: (1) What are the views and insights of elementary teacher candidates related to their theoretical knowledge of SBSM? (2) What are the views and insights of elementary teacher candidates related to their practical competency of SBSM? (3) What are the foresights of elementary teacher candidates related to possible problems that they can encounter in the implementation of SBSM?

2.Method

This study employed qualitative research. Qualitative research suggests that researchers examine the subject or subjects under consideration in their natural environment and try to interpret the phenomena from the perspective of the participants (Denzin & Lincoln, 1988, cited in Ekiz, 2009). Consequently, ‘holistic single case design’ which is useful in identifying whether an accepted case

in a field works was used. Thus, the study focused on elementary teacher candidates' views and insights on whether they have the necessary competencies related to sound-based sentence method.

2. 1. Sampling

Convenience sampling was used in this study. Based on this method of sampling, a close and accessible group was selected, which would be practical for the study. For this reason, the results of the study would be valid for his sample. The study was conducted with 3rd and 4th year students studying elementary education at the Education Faculty of Pamukkale University (n:195).

2.2. Data Gathering Tool

In order to identify the views of elementary teacher candidates regarding the sound-based sentence method, an open-ended question survey developed by the researchers were used. While building the survey, teacher candidates' opinions were taken into consideration and a literature review was conducted. The questions were discussed with 4 faculty members who were experts in the field and 5 students to ensure content validity. Based on expert opinions, the final version of the survey was completed. The survey included a form of demographic information and five open-ended questions.

2.3. Data Analysis

To analyze the data gathered through the survey, open coding method was used. The qualitative data gathered through the survey were typed and exposed to content analysis. The data were read by the researchers elaborately and the codes were revealed. Related codes were then grouped under certain themes based on which interpretations were made. By identifying the reliability coefficients of the codes determined by the two researchers, it was aimed to enhance the reliability of the study. The following formula was used for each question: "Reliability=Agreement/Disagreement + Agreement x 100". After calculating this formula for each question, the percentage values for the first question was 84; for the second question 91; for the third question 86; for the fourth question 91; and for the fifth question 86.

Codes under the themes were interpreted by explaining them in relation to each other and supporting quotations were provided. In the quotations, abbreviations were used for the participants. These abbreviations include gender (F/M), year of study (3/4), students' grade in basal reading and writing (A1,B1,C1...). For example, (26, M, 3, C2) refers to a third year male student whose grade is C2.

3.Bulgular

For the first research question of the study, the theme "the elementary teacher candidates' views on their theoretical knowledge of SBSM" was revealed. The codes contributing to this finding are: 1. I think I am theoretically competent in SBSM. 2. I think I am partially theoretically competent in SBSM. 3. I don't think I am theoretically competent in SBSM.

According to the results of the study, the quotations of the theme "the elementary teacher candidates' views on their theoretical knowledge of SBSM" related to the code "Seeing oneself

efficient in SBSM” are as follows. A total of 127 candidate teachers see themselves theoretically efficient in SBSM.

“I am familiar with the topic, highly confident (15, M, B1).” “For me, even though we have not been brought up with SBSM, at university we had the opportunity to familiarize with this issue and apply it (33, F, 3, A1).” “I think, because of the fact that our exam was open-ended and our teacher gave importance to this issue, I have had enough knowledge (34, F, 3, A1).” “I know how to apply the principles of SBSM. I think I will not have difficulty. (37, F, 3, A1)” “I can fully transfer the necessary knowledge to students step by step (56, F, 3, A2).” “I don’t think we have too much missing theoretical knowledge, as our teacher paid the necessary attention to this issue. (62, F, 3, C1)” “Actually, I learned this technique both theoretically and practically in basal reading and writing course. I believe, I will be successful. (84, F, 4, A1)” “I think I am efficient. As we also attended the practicum, I can see where I am in terms of teaching. (97, F, 4, C1)” “If I were to score myself from 1 to 10, I would give myself a score of 8. (114, M, 3, A2)” “I see myself theoretically efficient. The basal reading and writing course I have taken is sufficient. (120, M, 3, B2)” “I see myself as efficient as a teacher to instruct a student. (141, M, 3, A2)”

According to the results of the study, the majority of the teacher candidates think that they have the sufficient knowledge of theoretical structure of SBSM. Teacher candidates, even though they were taught reading and writing analysis, expressed that thanks to the education they took in the undergraduate program they learned the theoretical structure of SBSM at a satisfactory level. Teacher candidates mentioned that conferences and seminars are important in learning the theoretical structure of SBSM and in internalizing what is learned also the learners who were weak in theoretical knowledge mentioned that they would make up for this weakness in time.

According to the results of the study, the quotations of the theme “the elementary teacher candidates’ views on their theoretical knowledge of SBSM” related to the code “Seeing oneself partially efficient in SBSM” are as follows. . A total of 50 candidate teachers see themselves theoretically partially efficient in SBSM.

“I am at a medium level, it could be better. (8, F, 3, C1)” “I have a medium level of knowledge. (17, F, 3, B1)” “I cannot claim that I am fully qualified in terms of theoretical knowledge but I am trying to improve myself. (19, F, 3, A2)” “I don’t see myself quite efficient theoretically. Improvement is needed. (7,F,3, B2)” “according to what I learned in the basal reading and writing course, I believe I am at medium level in terms of theoretical knowledge. (28, F, 3, BA2)” “In terms of theory, I think I am medium or slightly above medium level. (42, B, 3, A1)” “As I see from the period of basal reading and writing, even not quite efficient, I can be accepted as average. (132, M, 3, B1)” “I am as efficient as I practice. I think that I will make up for this in the practicum. (176, F, 3, A2)” “We have not been taught all the letters yet. We know how to teach some letters but not the letters especially the difficult ones in terms of pronunciation. (180, F, 3, A2)”

The teacher candidates who think that they are partially efficient in the theoretical dimension of SBSM know their weakness and are trying to overcome it. They attribute this weakness to the fact that they did not take enough instruction on SBSM in the undergraduate program. They predict that they will encounter problems especially in linking the sounds. The candidates, who mentioned that they will make up for their deficiencies in terms of theoretical knowledge with the help of practicum courses, expressed that they had not been taught some letters and would have trouble in teaching the letters that are difficult in terms of pronunciation.

According to the results of the study, the quotations of the theme “the elementary teacher candidates’ views on their theoretical knowledge of SBSM” related to the code “Seeing oneself inefficient in SBSM” are as follows. A total of 18 candidate teachers see themselves theoretically inefficient in SBSM.

“As we had been taught with sentence technique, it will be difficult to learn with SBSM (44, F, 3, A2)”. “I don’t think that I am efficient enough to teach a student. I need to read more and think about the issue and work harder. (162, M, 3, A2)” “As far as I know from the lessons that I am not efficient as I have not practiced in a school (166, F, 3, A1)” “I don’t see myself efficient in SBSM yet. However, I think that I will overcome this when I become a teacher. (173, M, 4, D1)”

The students who think that they are inefficient the theoretical dimension of SBSM attribute this to the fact that they were taught with the analysis method in order to learn basal reading and writing. However, the candidates mentioned that they will overcome this either with the help of practicum lessons or when they become a teacher.

In order to answer the second research question, the theme “the elementary teacher candidates’ views on their efficiency in applying SBSM” was found out.”

The codes contributing to the arousal of this theme are as follows: 1. feeling incompetent in the implementation of SBSM. 2. feeling competent in the implementation of SBSM. 3. feeling competent depends on various factors

“ The quotations of the theme “the elementary teacher candidates’ views on their efficiency in applying SBSM” related to the code “feeling inefficient and gaining experience in applying SBSM” are as follows. 43 teacher candidates pointed out that they did not feel themselves confident in implementing SBSM, but they will as they gain experience.

“A little experience would make a difference in my practical knowledge. (12,F,3, A2)” “We didn’t expose to an adequate practice. We only made observations. (13,F,3, B2)” “I think I will be beter as I gain experience. (23,F,3,B)” “I feel confident to the extend we covered in our classes. But, practice could be different (27,F,3,A1)” “I don’t think I will have a problem with theory. But, I’m not that sure for practice. I think I will learn it after starting to profession. (94,M,4,B2)”

Teacher candidates argued that they were competent in practice in general, however, practice sessions were necessary as they will gain experience. They perceive SBSM in two aspects one of which they successfully complete during their undergraduate education, but the second, the practical aspect arises when they start the profession.

As for the code “feeling competent in the implementation of SBSM”, 85 teacher candidates perceived themselves as competent:

“I think I’m competent enough to show the necessary care. (15,M,3,B1)” “I feel very confident. (16,F,3,A2)” “I’m active in practice and I think I’ll be successful. (19,F,3,A2)” “I feel competent since we have enough opportunities for practice. (33,F,3,A1)” “I think can implement it since these are all included in real life. (35, F, 3,A2)” “We have seen these methods thoroughly, so I don’t think I will have a problem with implementation. (39, F, 3, B)” “I’m quite competent. I was good at in-class practice. I will be better in real class implementation. (45, F, 3, B1)” “I don’t have a problem with implementation. I can make the class creative and useful for the students. (56,F,3, A2)”

As can be inferred from the above quotations, teacher candidates who took courses embedded with SBSM along with practice perceived themselves as competent. However, the students who took these courses without practice reported to have some problems in implementation. Including practice is not obligatory, but up to the instructor at the faculty. In this sense, it can be argued that including practice would be helpful for students’ implementation of SBSM.

As for the previous code, teacher candidates stated that they were competent, but could also face problems depending on some situations. For this reason, another code was revealed named as “perceiving oneself competent depending on some situations”. 67 teacher candidates said that they were competent although they could encounter problems in some situations. Some quotations for this code are as follows:

“I have adequate knowledge for teaching. However, there would also be some problematic students. I’m not sure how useful it will be for them. (55,F,3,B1)” “I don’t feel confident in practice. The context and the characteristics of the students would also matter. (132, M, 3, B1)” “I know it theoretically. I may have difficulty only in few sounds, which are hard to find in nature (59, F, 3, A2).” “I don’t have practical experience on sound-based sentence method. I only watched the presentations in our class. That’s why I don’t feel confident for some situations. (62, F, 3, C1)” “In terms of practice, I feel myself competent for making students feel the sounds. However, I can’t be sure for further steps. (64, B, 3, B1)” “No problem with practice, but it would be difficult to do every step. (74, F, 4, A1).” “I can’t be sure before I start practicum. (88,M,4,B1)” “I think there aren’t enough example to create texts. (146,F,3,A)” “Teaching letters one by one is easy. However, I can have difficulty in forming syllables and texts just like students would do. (149,F,3,B1)” “I think I will manage it by combining technology and creativity in practice.(151,F,3,A2)” “Since I don’t have a real classroom experience, I cannot say I am competent or not. (168, F, 4,A2)”

Most of the teacher candidates answered the survey stated that they were sufficient at the practice aspect of SBSM, however; also emphasized that this would depend on various situations. They argued that students’ cognitive characteristics and ages, physical conditions, present equipment and technological devices would affect their practical competencies. Besides, while applying SBSM, they said that they would not have any problems in making students feel the sounds, but in later stages, some problems could arise in teaching more difficult letters.

The quotations related to the code “Feeling competent in applying SBSM” under the theme of “Views and Insights of Elementary Teacher Candidates on their Competencies related to the Implementation of SBSM” are given below. 67 teacher candidates did not perceive themselves as competent in implementing SBSM:

“I don’t feel competent because we cannot be proficient enough to conduct such lessons with students. (17,B,3,B1)” “Problems might arise based on the level of the class. (41, B,3, B)” “I haven’t conducted any lessons using sound-based sentence method. (63, B, 3, B1)” “I think I’m not competent in terms of practice because we don’t have experience. (125,B,3,B1)”

The participants argued that the reason that they are not competent is because of the lack of practice during their undergraduate courses.

As for the third research question of the study, the theme “comparing SBSM with other methods” and related to this, the codes “being able to make comparison”, “making partial comparison” and “not being able to make comparison” were revealed.

Within the code “being able to make comparison”, the quotation from the students who was able to compare SBSM with other methods are provided. Some of the quotations from the 72 participants who felt themselves competent in making comparisons between SBSM and other basal reading and writing methods are as follows:

“Since I was taught with sentence method, I’m able to make a comparison. I know what the differences are. (183, B, 3, A2)” “I know the sound-based sentence method in depth, as well as other methods. So, I can make a comparison. (175, B, 4, A1)” “I have seen various methods in class, made evaluations on them, that’s why I feel competent.” (156, B, 3, A1)” “I feel confident in terms of comparing this method with other methods with their pros and cons. (150, B, 3, A1)” “For me, sound-based sentence method is better

than traditional method. Since I know the characteristics of both, I can make a comparison. (147, B, 3, A1)." "I feel myself confident in terms of practical issues, pros, and cons (139, E, 3, A2)" "We are equipped with the necessary information related to each method. So, I wouldn't have a problem in making a comparison in-between. (116, E, 4, B1)" "I can make a detailed discussion and comparison. I have sufficient knowledge. (113, B, 4, B1)"

Based on these quotations, it can be inferred that the participants, due to the courses they took, were able to make comparisons between basal reading and writing methods. 33 participants were able to do this because they were taught with sentence method. One of the participants stated that she could make a detailed comparison. On the other hand, 5 participants reported that they could identify the pros and cons of different methods.

73 participants said that they could make a partial comparison of basal reading and writing instruction methods. Some of the quotations related to this code are presented below:

"I'm aware of the obvious differences and what I should or shouldn't do. (151, B, 3, A2)" "I only know pros and cons to the extent that which is better for which age group. (148, B, 3, B1)" " I cannot make a detailed comparison. (126, E, 3, B1)" "I can make a comparison with the time during which I was taught. I don't know much about other methods. (125, B, 3, B1)" "I can barely distinguish pros and cons. (9, B, 3, B)"

As can be seen, only obvious differences can be compared and teacher candidates have superficial knowledge of these methods to identify their pros and cons. Besides, 7 participants reported that they could only make a comparison between SBSM and sentence method.

Further findings revealed that 17 participants were unable to make a comparison based on their answers. This constituted the code "not being able to make comparison". Some of the quotations related to this code are as follows:

"I can make a partial comparison with sentence method, but not other methods. (152, B, 3, A2)" "Not adequately. (130, B, 3, A2)" "Since it is not the sound-based sentence method that I was taught with, I cannot make a comparison. (122, B, 3, D)" "Even if I do, I think there will be a lot of mistakes. (162, E, 3, A2)"

There seems to be different reasons for not being able to make a comparison between SBSM and other methods. Some also mentioned that even if they made a comparison, it would not be a correct one. However, it should be noted that the number of the students for this code is 17.

4. Discussion and Suggestions

Results of the data gathered from the participants showed that teacher candidates were familiar with the SBSM in theory. Anılan (2013) found that most of the elementary teacher candidates could easily implement SBSM. In another study, Dedeli (2008) reported that fourth year elementary education students were competent in terms of sound-based sentence method. These findings overlap the results of this study. However, according to teacher candidates, their competency in terms of practice was limited. They also argued that they would overcome this by the help of school practicum and after starting the profession. This finding is also supported by Anılan (2011) and Vural (2006). Anılan(2011) argued that although teacher candidates had positive views on sound-based sentence method, they also had some concerns, but were able to implement this method in spite of their lack of experience. Vural (2006) also emphasized the importance of practice in

undergraduate courses as well as practicum and supervision and feedback during practicum. In this sense, school practicum should be extended and reorganized.

Although teacher candidates were taught with sentence method, they were able to adapt to SBSM and compensated their inexperience through conferences and seminars. Teacher candidates reported to have most problems in combining some sound and pronouncing some letters. Besides, some teacher candidates thought that the reason they have difficulty in implementing SBSM was due to their own learning experience with the analysis method. On the other hand, some candidates stated that they were competent in terms of implementation, but classrooms being too crowded and consequently not having enough time for exercises and activities would cause problems in practice. This was also supported by Şahin, İnci, Turan and Apak (2006) which pointed out that classrooms being very crowded limited the opportunities for exercises and activities. Another problem that the teacher candidates presumed was the necessary equipment for sound-based sentence method. In a study with elementary teachers, Karaman (2008) found that “teachers didn’t have any problems in terms of the necessary equipment, and they created most of the tools needed for the method”. The main reason for the differences in the teacher candidates competences of practice seem to be their undergraduate courses. The students who took the basal reading and writing course with embedded practice were more confident, which was also supported by Yıldırım and Demirtaş (2010) in which it was argued that this course should combine theory and practice.

72 participants stated that they could compare SBSM with other teaching basal reading and writing methods while 73 reported that they could do a partial comparison. 17 participants were not able to make a comparison. It can be inferred that teacher candidates are at a moderate or good level in terms of comparing SBSM with other methods.

Based on the findings, the following suggestions were developed: Since the teacher candidates argued that a practical teaching and writing course would be more useful, this course at undergraduate level should be conducted embedding practice.

Basal reading and writing course has 4 credits with 2 hours of theory and 2 hours of practice. School practicum hours should be extended and spread across four years. It was also concluded that in teaching basal reading and writing course, activities and examples for “combining sounds” and “forming syllables and words”.

In materials design classes, teacher candidates should be trained to prepare the necessary tools suitable for SBSM. Universities and academics should organize symposiums, seminars and conferences towards SBSM for teacher candidates. Instructors should not limit themselves to teaching SBSM only. They should also teach other methods used to date and make a comparison in-between.

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Violence and conflict in schools: analysis of proposals based on restorative justice in Brazil

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Abstract

This article intends to analyze some of the policies implemented in Brazil with a view to the prevent school violence and the mediation of conflict in the school. Among these policies, the following will be analyzed: the Justice for 21st century project: Instituting Restorative Practices, from Porto Alegre and the Justice and Education project: a partnership for citizenship, from São Paulo. These projects work with the forming of mediators to act in the scope of the school conflicts within the perspective of restorative justice. The analyses herein presented are based on papers published in journals and dissertations on the theme. One of the assumptions of the analysis is that the concern with the lack of security in the schools and with the conflict situations inside them has mobilized different public organs to draw up harder and more restrictive policies as well as a growing influence by the justice related organs to find solutions that initially would be the schools' responsibility to deal with. Based on this, we highlight the phenomenon of the judicialization of social relations and in particular in the case of schools, which would be the passing on to justice organs the function of solving doubts that the various social groups do not consider themselves capable of answering. In this vein, proposals and projects for facing school violence and conflicts has been originated in organs related to the justice system, that even take on the task of preparing educators to work with the issue. The conclusion is that the pedagogical and educational character that is the responsibility of the school institution is passed on to the scope of law. In this manner, the school institution leaves off its role in the education for citizenship and stops analyzing the nature of its conflicts, from the standpoint of a collective effort within the school by involving the different groups that it composes, to seek the best solutions for these conflicts.

Key words: Restorative Justice; school violence; public policies

1. Main text

Introduction

The issue of school conflicts has mobilized educators and other sectors of society due to the feeling of insecurity and perplexity with the situations that the educational institutions have gone through. The most frequent complaints are in relation to the students' attitudes; lack of respect to the school and to the teachers, verbal aggressions and, in some cases, aggressions and very frequently bullying has been pointed out.

With the increase of this type of concern, which is accompanied by the feeling of intolerance to behavior considered violent, alternatives for facing the so-called school violence have been sought. In this vein, since the year 2000, with the start off of the 2000 Manifest launched by UNESCO, the Educators for Peace Program was introduced. In this program six principles are highlighted: respect life, rejection of violence, being generous,

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listen to understand, preserve the planet and rediscover solidarity (Mullet & Amstutz, 2012). These principles, though undoubtedly very important and significant, come into shock with the reality in which millions of people in the world live with, as well as in Brazil. In truth, these principles are not in line with what Sennet (2006) calls the culture of new capitalism, where individualism, lack of respect for the human being and the absence of solidarity are the defining marks.

On the plate of the Educators for Peace Program, and as from the year 2000, the methodology of restorative justice, present in the judicial processes begin to be viewed as an alternative to resolve conflicts within the school, reaching its peak in Brazil at the end of the first decade of 2000.

The analysis presented in this text points out that the school goes from solutions based on psychology to proposals referenced in judicial processes as a way to find solutions for the educational issues, which should be based on educational and pedagogical theories. The concern with the insecurity in the schools and with the situations of conflict within them, have mobilized different public organs to draw up ever harder and more restrictive policies as well as a growing influence of the justice related organs to find solutions that in first place would be the responsibility of the schools to solve. In this context, we highlight the phenomenon of judicialization of social relations and in particular in the case of schools, which would be the passing on to justice organs the function of solving doubts that the various social groups do not consider themselves capable of answering

The critical analysis of some proposals that are being presented in Brazil, that have as a reference restorative justice, does not invalidate some of the principles present therein, but the proposal is to put them in their right place, and point out the limits for this type of approach to the issue called “school violence”.

Restorative Justice: some principles and questioning about its application in school

Based on experience with conflict solving, the Restorative Justice appears as the “new” paradigm, alternative to the Retributive Justice and presumes not only the adoption of conflict mediation practices and techniques, but also a modified view of crime and justice. This proposal has come to be considered adequate not only for issues related to justice but also for other social organizations.

Retributive Justice (our penal system model) operates in a manner that focuses on guilt, generating the equation: *crime-guilt-punishment* to solve the problems of social conflict. The solution of a crime focused on guilt remits to the past- who did it? – and guides all the judicial process that pursues establishing legal guilt and the assigning of corresponding sentences, having a defense lawyer, a prosecutor (who represents the State) and a judge, acting in an impersonal and adversarial process.

On presenting a proposal of principles for discipline based on restorative justice, Mullet & Stutman (2012, pg. 46) pointed out the following principles: the restorative discipline attempts to strengthen the relationships and build a sense of community stimulating an atmosphere of mutual care in the school, because it recognizes that the relationships are the core of community spirit; creates systems that treat bad behavior and the damages in such a way so as to strengthen relationships; it focuses on what is a *violation* of people and relationships and not only disobedience of rules; gives a voice to those who have suffered the *violation*. As can be seen, the term *violation* relates to bad behavior, an aspect that leaves open the relations of power that determine how such rules are established and the severity or not of the broken rules.

Despite focusing on more positive and less punitive aspects, restorative justice has in itself social control component linked to the legal issue. As MacCluskey (2008) reminds us, the language used by the justice system, such as offender and victim derives from criminal justice and the correlated psychological perspectives, therefore making these terms inadequate in when utilized for the school organization. The terms many times used in restorative justice, such as transgressor or perpetrator and victim have meanings linked to contraventions or crimes and transposing these terms to the school atmosphere can lead to mistaken actions and criminalizing actions that would fall into the definition of indiscipline or incivility. The example given by McCluskey (2008) calls attention to this aspect:

In Scotland, for example, the most common reason for school exclusion is 'general and persistent disobedience' (Scottish Executive, 2005a). Pupils are, in fact, rarely excluded for acts of violence and the relationship between pupils who disrupt and those disrupted is complex (McCluskey, 2005, 2007). The borrowing of terms such as 'victim' and 'perpetrator' from criminal justice may then reinforce a discourse that demonizes and criminalizes young people in general. As Waiton (2001, p.141) argued, 'it often appears that the best that young people can hope for ... is to be labeled as victims unable to cope with the pressures of life, rather than as villains who are destroying it'. (MCCLUSKEY, 2008, pág.205)

Another aspect brought up by McCluskey is that restorative justice, on focusing on the fact itself, does not lend to thought about how the offender became an offender, ignoring issues of power, class and gender.

Highlighted for reflection is that the positive aspects brought by restorative justice have already been present in all discussions carried out on the democratic management of education, and aspect very present and discussed as far as theory related to the studies on education that appear to have been reinvented in the perspective of restorative justice. The participation and involvement of the different groups that compose the educational process in decisions, the focus on the interactions that take place in the school, so much so in structural terms as subjective, the collective work and constant dialogue are discussions that have been present for a long time in the educational area, with the advantage of including aspects of power, gender and class relations.

The Brazilian educational legislation, mainly since the Law of Education Guides and Bases (Lei de Diretrizes e Bases da Educação LDB) established the principles of democratic administration of education, which establishes the importance of the participation of all in the educational process. The 7th and 9th articles make this aspect very clear:

Article 7 – the democratic administration has the objective of allowing the school a larger degree of autonomy, in such a way as to guarantee the pluralism of pedagogical ideas and concepts, ensuring the adequate standard of education proffered

Article 9 – In order to improve the achievement of its objectives, the democratic administration in the school will be achieved by a: I the participation of the school professionals in drawing up the pedagogical proposal;

II – participation of the various school community segments – directors, teachers, parents, students and employees in the Consulting and decision processes through the School Council and the Parent Teacher Association -PTA.

Notice that the principle of participation both by those directly involved, such as school professionals and students, as well as other sectors of support in the pedagogical process, such as parents and community, is present in the legislation. Institutions such as the School Council and the PTA have their composition and objectives formally defined in the norms and legislation of the State of São Paulo.

In this manner, the principles of restorative justice can bring techniques that favor the possibilities of dialogue and participation in the school, but the discussion of democracy and participation foreseen even by law were already present in schools. What can be reinforced is that some schools adhere to this technique by bringing in the principles related to human rights and also be related to justice, the sector which meets the concerns about the insecurity that the school and the teachers undergo. In truth, it would be necessary for schools to believe in the democratic process and in the community around it in order to achieve a practice of conflict solving from the inside to the outside of the school.

Analysis of two proposals for solving conflicts in the school implemented in Brazil

Justice and Education Project

The *Justice and Education Project: a partnership to citizenship* is coordinated by the technical-pedagogical team of the Special Projects Directorship of the FDE – Foundation for the Development of Education in the State of São Paulo/Brazil. Its objective is to reduce the episodes of violence in the schools by way of the adoption of the precepts of Restorative Justice that stimulates the involvement of the community in solving conflicts.

According to the documents related to the Project, the implementation of restorative justice occurs through the development of Restorative Circles, as a method to solve conflicts, that are based on spaces open to dialogue and the adoption of negotiated solutions for the understanding between those involved in conflicts (FDE 2010).

These present the justification that the Restorative Circles allow for the participation of students, teachers, school directors, community representatives, and representatives of social and official institutions (such as nongovernmental organizations and Judicial system), in addition to the parties themselves involved in the conflicts, in a deep and organized discussion about what caused the conflict, the consequences, and the possibility of reparation of the damage.

Developed from a partnership signed between the Secretariat of Education and the Justice Courts of the State of São Paulo, with the participation of judges from the Childhood and Youth Courts, the Justice and Education Project: a partnership for citizenship (*Projeto Justiça e Educação: uma parceria para a cidadania*) was implanted in the state Grammar and High school education.

The onset of the Project in the State of São Paulo began with a pilot project of restorative justice in the municipality of São Caetano do Sul (Education Directorship of São Bernardo do Campo), in 2005. The project aims at developing the capacity of solving conflicts in a preventive manner in the schools, avoiding it being sent to the justice department, and of those not related to the school community experience, in the Courts, in Restorative Circles, strengthening the community networks to act in an articulated manner (MELO et.al. 2008). Three schools were pioneers in adhering to the project and, subsequently it was expanded, encompassing the twelve municipal schools of São Caetano do Sul. Educators, parents, students, social workers and Infancy Advisory Board members (Conselheiro Tutelar) were “trained” for the practice of restorative circles, making them facilitators (term suggested in the guidelines of the UN Resolution 2002/2012). One of the parts of the training was a course on the theme that many of the school networks began to attend, rendered in the Escola Paulista de Magistratura,.

The project works on two fronts: In the implantation of institutional and educational changes within the schools and in the Child and Youth courts and in the strengthening of the network of support to these children and youths, involving public and/or private entities in the area of defense and ensuring of rights.

The follow-up of the actions is carried out by a Judge, a technician from the Prevention Department and a specialist from Centro de Criação de Imagem Popular – CECIP (Center of Popular Image Creation).

In 2006 the project was expanded by the SEE, with support from MEC, to the cities of Guarulhos (Education Directorship of Guarulhos – North Region) and São Paulo (Center South Education Directorship – Heliópolis Region) and, in 2008, the municipality of Campinas adhered to the project, naming it *Justice and Education – New perspectives*.

In the cities of São Paulo (Heliópolis), bordering São Caetano do Sul and Guarulhos, in the greater São Paulo, two hundred educators, students and school community members of two Education Directorships of COGESP¹ -SEE, through a partnership with Justice agents, judges, and Child Protection Council members, were

capacitated in approximately 100 hours to implement restorative circles in the school and other spaces (CECIP, 2010).

Five education leaders (director or vice-director, pedagogical coordinator, teacher representative, student representative, and representative of families of the students) were also mobilized further to two Education Supervisors or Technical Pedagogical Assistants (nowadays called Coordinating Teachers of the Pedagogical Workshop), in each one of the Education Directorships, so as to promote the organization and implantation of the restorative circles, as well as allowing the incorporation of the restorative principles in the school pedagogical proposals.

The activities carried out by the educational leaders were: research on the violence in schools and the community; identification of values and discussion on the vision and mission of the school; construction or reconstruction of the norms for coexistence; communication about the project to the community (CECIP, 2010).

The Justice and Education Project is based on work with ethical principles, “empowering” people to assume their role as players capable of operating in the social atmosphere, administrating conflicts and reducing violent manifestations. Dialogue is the main instrument sought after in both projects for the building of agreements between the offenders, victims and community.

Another objective of the Justice and Education Project is the strengthening of the networks of Guarantees of the Rights of Children and Adolescents and the abidance to the programs foreseen by the ECA (Child and Adolescent Statute).

The motto of the Justice and Education Project is “to make Justice more educational and Education with more justice”, by perfecting the Judicial and Educational systems, transforming the punitive character into an educational one, and “substituting the mark of guilt by the awareness of responsibility” (CECIP, 2010, p.11 -12).

The Project still exists nowadays, although the financing for training and technical support to the facilitators of restorative/justice practices and for the educational leaderships was interrupted between January and October 2007. The Project’s actions to develop the restorative practices learned, continued on in the schools and in the community as well as in the Justice Courts. In December 2007, financing was re-established (MELO et al, 2008). Currently, the Project’s actions are in course in some educational directorships, subsidized, however, only by private institutions such as Nextel

A strong presence of the organs linked to the justice system can be seen in this project, reinforcing what we already affirmed previously: the judicial character that permeates it despite its proposals of collective construction of rules, empowerment of the groups involved, etc.

This judicial character is already seen in the regimental structure or the disciplinary code of the schools that are similar to the penal code that we know, insofar as it uses the equation *indiscipline – guilt- punishment* in the application of punishments such as suspensions and compulsory transfer, following the traditional judicial system’s model. Although it has a different methodology and approach from the retributive justice, much closer to the idea of justice currently present in schools, the implementation of the restorative justice would alter very little in the school culture, continuing with the judicial character of the issue in detriment of the pedagogical character.

We know that the appearance of prisons in the XVIII century, even being seen as a reform for being an alternative to the brutal and unjust punishments that were applied at the time, soon became subject to criticism due to the violence and cruelty that the prisons themselves began to produce. According to Howard Zehr (2008, p. 114) “[...] the attractive of the privation of liberty is that it permits the term of the punishment to be measured by the severity of the offense. Prisons constitute a form of dosing the punishment in units of time, offering an appearance of rationality and even of science to the application of pain”.

This apparent rationality or Science has moved the actions of the Government in answering to the demands for security, judicializing the school relationships, with the adoption of penal justice models inside the schools, promoting punishment in levels, “measuring the punishment time to the severity of the offense”, as Zehr affirms.

The network of state school in the São Paulo State, adopt this grading of punishment in its disciplinary system and does the inverse of imprisoning by impeding the student from attending the school atmosphere when submitted to various suspensions which culminate in the compulsory transfer. Students, perpetrators of infractions, who go through the Fundação Casa¹, usually face even stronger rigors in relation to the disciplinary code, when they go back to school.

The book of occurrences (present in almost all state public schools) itself has a policing content in marking the “passage” or involvement of the student in acts of indiscipline. Through the entries in the book the number of “infractions” are counted for the applying punishment. In this manner, three admonishments, normally, will be converted into a few days suspension; various suspensions into successively longer suspensions, until culminating in mandatory transfer.

It seems to be a scaling mechanism of punishments the moves the action more than the acts themselves. It seems to be that the search of a solution for the cases of school indiscipline is focused on the application of constantly more severe punishments in a manner as to “get rid of the problem” progressing to the maximum sentence, which is mandatory transfer.

However, although the principles of Restorative Justice are essentially pedagogical principles, approximating school and justice in the pursuit of solutions to conflicts is a risk that can end up in an even more repressive and more violent school.

Justice for the 21st Century Project: Instituting Restorative Practices, in Porto Alegre.

The *Justice for the 21st Century* Project has the objective of divulging and applying the practices of Restorative Justice (RJ) in the resolution of conflicts in schools, with NGOs, communities and Child and Youth Justice System as a strategy of combatting and prevention of violence in Porto Alegre, State of Rio Grande do Sul/Brazil. Implanted since the year 2005 in the 3rd Court of Childhood and Youth in the capital city of the state, the project Justice for the 21st Century is articulated by the Association of Judges of the State of Rio Grande do Sul.

The work concept of the Justice for the 21st Century Project proposes “emancipating strategies”, irradiating to the service network and to the community in relation to the Public Policies defined by the Child and Adolescent Statute (ECA) through means of individual and institutional partnerships. In three years of the Project (2005-2008), 2,583 individuals participated in 380 restorative procedures carried out in the Child and Youth Court. Another 5,906 participated in training activities promoted by the Project. Further to the Juvenile Court, other institutional facilities such as the penal units of the Foundation for Social-Educational Service of Rio Grande do Sul (former FEBEM), units of open socio-educational measures, shelters, schools and NGOs are also applying these practices in the administration of internal conflict, avoiding their judicialization.

The Project’s initiatives have their main insertion in the network of social service network for adolescents in conflict with the Law from the Justice System, but it establishes partnerships in a manner that expands its scope, producing repercussions in the ambience of other services such as Security, Social Assistance, Education and Health.

It can be seen that this Project was originated with a focus on situations that involve more juridical than educational and pedagogical issues links to the day-to-day educational process. The day-to-day situations in school rarely involve violence that requires judicial intervention, as long as there is an atmosphere of dialogue and democracy in the school.

The thesis developed by the teacher Betina Schuler (2009) points out aspects that can contribute to the reflection points brought up in this study, as it highlights the element of judicial infraction present in the referred project, fact that is present in the teachers’ speech.

One of the teachers, integrant of one of project's pilot schools, during the initiation of the RJ course said that their school was chosen due to the frequent invasions in the school and the violence in the community in which the school was located and that, due to this they implanted a nucleus of the RJ and Juvenile Protagonism with the class representatives, in order to disseminate the RJ values throughout the school and the community, arguing g that there is a greater possibility of barring violence an aggressiveness in the school. This would already be reaping results, as they had lots of fights during recess time (less watched space) and now this had improved. (SCHULER 2009, p.157)

Another important aspect to highlight is the issue, previously discussed in this article, referring to the idea that the proposals presented by restorative justice are new. All the main aspects listed as restorative justice characteristics, such as negotiation, the participation of all the players in the school system, giving value to solidarity and the strengthening of relationships, have always been present in the proposals for the democratic administration of schools. The below speech by one of the teacher's pointed out in Prof. Betina Schuler's thesis demonstrates this idea well:

[...] I even think that the school has Always been aware, because before the coming of this concept of Restorative Justice, in principle the school has always had a restorative attitude, because the school [...] is possibly one of the few institutions that always placed the person who caused the damage and ho suffered damage face to face. Therefore, already in this manner, we the school have this attitude of calling two people together to from there on try to build on something [...] it is a new organization of the norm in society (SCHULER 2009, p.158).

Despite the positive propositions of the principles presented by the restorative justice Project, the fundamental fact is that it is based on a biased view of criminality and contravention, aspects that if taken as the determinant view of day-to-day school relations will bring about a predominance of judicialization of school relationships. Intolerance to undisciplined behavior or rudeness and the consideration that these are liable to judicial punishment can cause a climate of fear and oppression rather than one of cooperation and solidarity.

Conclusions.

Taking into consideration the principles of Restorative Justice, however pointing out its limits for Education, we highlight that the projects that are based on it, such as *Justice and Education: a partnership for citizenship* and *Justice for the 21st Century*, although involving education professional in their implementation, have the justice system as their structure. They are professionals linked to the judiciary system who train the professional mediators as well as having the control of the implementation process of the project.

One of the criticisms to the programs is exactly that the dependence on the judiciary for the training course, which demands in São Paulo 80 hours of studies in order to participate in the project and work with restorative circles in the school. Another criticism is the focus on voluntary work by the people who wish to participate in these projects.

There still are reservations in relation to the Restorative Circle itself, being considered innovative can, according to Schuler, "also be seen as one more way of exercising power, the same as many others, producing certain manners of subjectivism", as it takes "the day-to-day micro-fractions, dividing students in a binary

manner into victims and offenders, classifying behaviors, trying to approximate deviations as much as possible to the norm [...]”(SCHULER, 2009, P. 107).

In the context of Justice, the judicial concepts of guilt are individualistic, based on the idea that the subject, as a free agent, who acts according to his own will, ignoring the social, economic, political and psychological context of the behavior. It is an atomized vision of the individual, based on free-will that brings about the concept of criminality or violence as individual phenomena (ZEHR, 2008; XAVIER, 2001; ADORNO; PASINATO, 2007).

In this manner, the problems of violence are accredited to the individual who, stripped of social competences should adapt to the requirements of a new society.

Another aspect that we wish to highlight is that the option for a partnership between the Secretariats of Education and of Public Security, reveals a manner of thinking and acting about security, focusing on the police and the justice system and triggering the phenomenon of judicialization in the schools (CRHISPINO; CRHISPINO, 2008), a mechanism that incorporates the principles of penal justice in the school atmosphere, excluding the educators from the decision taking roles and the pedagogical treatment that are required by school conflicts.

On attempting to transfer its responsibilities to other institutions and by making the problems that it cannot deal with invisible, the Governments intend to “eliminate” the problems of violence from the schools by giving the Government Policy a considerable proportion of visibility, answering to society’s anxieties and reaffirming its authority in issues of public safety. This political choice seems to correspond to the social anxieties for safety, as, in a society of fear, any form of control and vigilance is seen as a protection factor.

However, even if the application of repressive practices answers to the collective desire for Strong measures to guaranty public safety, the bringing of the judicial apparatus closer to school life, consolidates a climate of fear and of mistrust in the school itself (GONÇALVES; SPÓSITO, 2002).

Therefore, the work based on the principles of Restorative Justice should be thought more of as the development of practices which we call pedagogical or, who knows, come to be called restorative (used by Education for a long time, but perhaps currently a bit forgotten), with a view to the restoration of relationships for the construction of an atmosphere of peaceful coexistence, with the main role being of educational players. Work that is not dependent on external partners because it should be thought of and practiced fundamentally by individuals of all the segments of the school, including, of course, the families and local community.

A construction that occurs through the practice of democratic processes, be it in the formulation of the school rules, be it in the conduction of how these are complied. Practices that give a meaning to the existence of a school and that can act as the conducting wire or reducer of violent situations.

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Virtual design and management of construction projects in educational process

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Abstract

In the present, a priority theme of science and research in the field of design and management construction is aimed at transforming the construction sector through the rapid adoption of new processes, such as Integrated Project Delivery (IPD), Integrated Design and Delivery Solution (IDDS) together with Building Information Modelling (BIM) and automation technologies, using people with enhanced skills.

It is necessary to transfer the idea of cooperation among the participants of construction process into the pedagogical process as soon as possible. An educational project focused on the skills development for virtual design and management of construction based 5D technologies, solved to the Civil Engineering Faculty of Technical University of Kosice (Slovakia), dealt with an innovative form and content of teaching in field of design and management of construction projects. This paper describes the main goals, opportunities and results of the mention project, which can develop the professional, communication and managerial skills of students in the joint working teams using the latest digital and automated systems of design.

Keywords: virtual design, construction projects, construction, educational process

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1. Introduction

Considering the increasing of construction complexity (constructive, material and technological difficulty) and the pressure of market for quality and efficiency of construction on the one hand and the shortening deadlines for construction process on the other hand, the current methods of project documentation processing and the management of construction planning processes seem to be insufficient. However, the global civil engineering in suffers with mistakes and misunderstanding in communication among the participants of construction project from the very beginning of an investment plan to its realization. This fact seems counterproductive to the very complex efficiency and performance of construction work, including the stage of using.

Accordingly, there is need to monitor the worldwide development towards necessity of structural, technical, technological, qualitative, economic or using requirements and solutions integration in construction projects. The global improvement of the projects cannot be achieved by development of only optimal solution but by complex perception of all parameters of the building projects in all its phases (design, preparation, realization, using) in term of all aspects (quality, safety, environmental suitability, energy efficiency).

2. New concept for design and realization of constructions

The development in fields of engineering support and project tasks directed from a very heterogeneous software environment to integration into more comprehensive tools. The design, construction and commissioning sectors repeatedly analysed as inefficient (Šoltés, Kozlovská, 2011). Actual design tools and delivery solutions for building projects are:

- Unproductive
- Uncommunicative
- Over time and budget

Traditional Design and Delivery tools of construction projects must undergo a fundamental structural change. The studies indicate that the development in support of engineering and project tasks directed from a very heterogeneous software environment to integration into more comprehensive tools. The difficulty of building structures as well as the investors requires more interconnected information environment which is consisted by the base of information and data about whole construction elements and structures.

In the present, there is necessary to focus on close collaboration of individual participants of construction process (investor, architects, civil engineers, structural engineers, MEP systems engineers, constructor, owners,...) which is the main condition ensuring of the effective management of construction projects. This can be fulfilled by using the of 5D (five-dimensional) modelling concept. This can be described as the complex of three essential component parts, interconnected for project's design and construction process. The first component is 3D (three dimensional) project's data allowing the display of building with its relevant information. The second component is time related data (as 4th dimension) and the third component is cost-related data (as 5th dimension) (Popov, Juocevicius, Magilinskas, Ustinovichiuss, Mikalauskas, 2009). The basic principle of using 5D modelling concept is based on the fact that individual information about 3D, 4D and 5D elements are obtained automatically when using 5D BIM technology which represents a potential for new approaches represents. BIM is currently the most common denomination for a new way of approaching the design, construction and maintenance of buildings. It has been defined as "a set of interacting policies, processes and technologies generating a methodology to manage the essential building design and project data in digital format throughout the building's life-cycle"(Bryde, Broquetas, Volm, 2013).

The BIM technology covers geometry, spatial relations, geographic information, quantities and properties of building components (e. g. particular details) of the design construction (IFC Support for Sustainability, 2007). We can easily extract this information and provide it to all participant of construction (limited or unlimited) through the use of BIM technology. The gist of BIM technology therefore is based on the sharing of the correct and same information about construction by all participants of construction (Fig 1). This technology presents an opportunity for more effective logistic of construction process in term of spatial based scheduling of construction, which will increase a predictability of schedule and financial tendency of construction process. On the other hand, the BIM technology can be used throughout the whole life cycle of construction, including the realization of construction and its building-up process, occupation of construction, facility management to the demolition of construction. At the international conference about IDDS (2009, in Espoo – Finland) has been shared the knowledge of research focused to using of BIM as the tool for simulation and visualization of "prototypes" of the buildings, BIM for support of safety in the sites, using of BIM for monitoring of building elements position, using of BIM for generation of designs alternatives and estimation of the building processes costs (Improving Construction and Use through Integrated Design Solution, 2009).

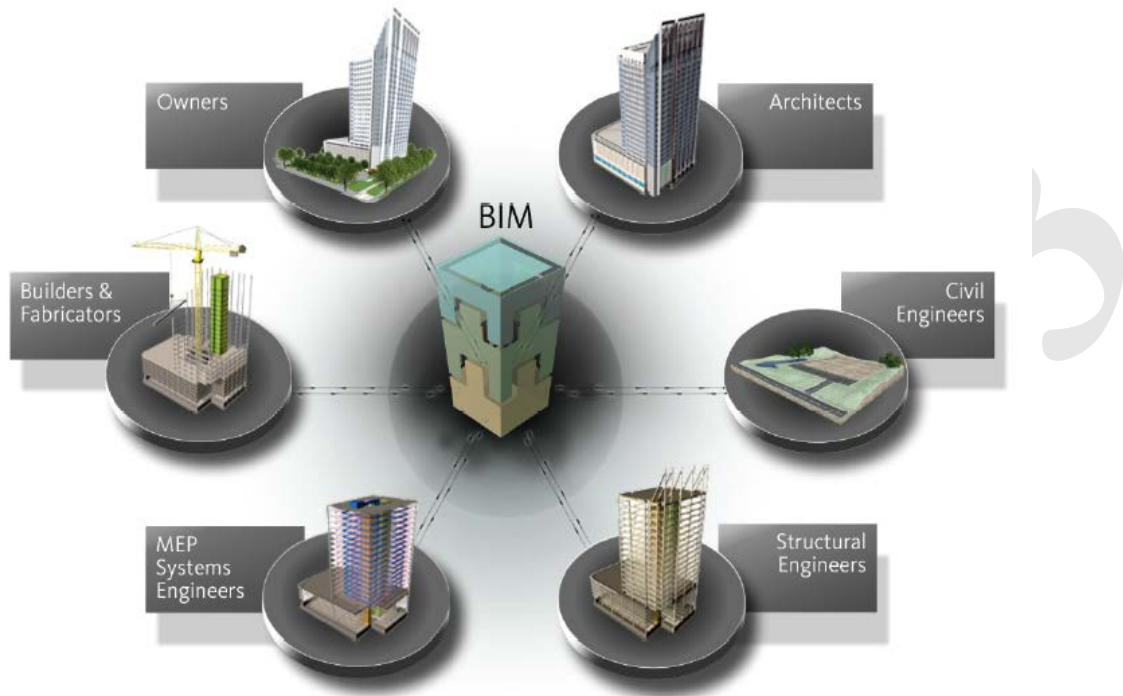


Fig. 1. Integrated environment for design and management of construction projects (autodesk.com)

According that, currently is necessary in the field of education to increase of digital competence of graduated, to develop their logical and critical thinking in the use of digital technologies and management and communication skills and teamwork as well. The educational project which was solved at the Institute of Civil Engineering Technology and Management, Civil Engineering Faculty of Technical University of Košice, Slovakia was focused on these aspects of pedagogical process. Therefore it was necessary to use a software environment for virtual design and management of construction, which is using also for educational purpose at our institute.

3. Software environment for virtual design and management of construction

The software environment for virtual efficiency design and management of constructions, materials and technologies through 5D technologies is breakthrough solution of activities management linked with the integration of constructive, material, technological and economic solution of structures. Substantial increase in quality of construction project management and decrease of construction risks can be achieved by this new technology which also allows a simulation and optimization of this construction solution efficiency. The integration of relatively heterogeneous activities linked with the construction projects is achieved through the unique way which allows improve of construction realization, thereby contributing to increased competitiveness in regional economy, as well as a subregional economy.

The virtual environment offers the increase the quality of design and management for progressive intelligent construction, with a focus on efficiency and return of sources. Virtual environment based on cooperation of

engineering and constructive solutions allow identifying and reducing of the constructive, material, technological and economic risks already in the phase of construction design. 5D technology provides an environment for synchronization of constructive solution with the financial and time aspects of planning and realization of construction projects in accordance with the concept of Integrated Design and Delivery Solution, thereby increasing the quality of construction projects and predictability of construction project development.

The virtual reality is gradually applied in all areas of economic activities. It can be used in the area of research and development of constructions, materials and technologies by the same way as in the design of production processes, workplaces, production systems, planning and management of production. The use of virtual reality allows simulating of proposed constructions for the particular parameters and requirements in the digital environment and its implementation.

The advantages of using virtual reality are for example:

- integrated system solution for digital laboratory,
- virtual research and development – design options, optimized solutions, reducing time and costs for research and development, increase quality of the resulting research solutions in construction,
- virtual prototypes of construction – visual presentation of real system, testing of system parameters in the final phase of development,
- virtual processing – validation of programs, eliminations of collisions, verification of production technology, optimization, etc.,
- virtual design – optimization of production disposition, optimization of material flows, sources optimization of construction production, dynamic verification of design, objective time standards, etc.,
- virtual assembly works – validation of assembly processes, optimization of assembly mix and sequences, optimization of assembly procedures,
- virtual construction – optimization of material and financial flows, minimizing of resource consumption, reduction of construction duration and working capital.

The digital laboratory is an effective tool for linking of experimental research and its digitization with an applied research and educational activities and industrial practices. There are created the conditions for active participation of young researchers, PhD students and postdocs in research fields of excellence research of construction material, intelligent construction elements and intelligent structures, as well as for the education of students of Civil Engineering Faculty.

4. Skills development for virtual design and management of construction based 5D technologies

Our Civil Engineering Faculty, Technical University of Košice provides an education for whole position spectrum of civil engineers who are engaged in design, planning, preparation and realization of building project. In term of status of individual participants of construction, the graduates get into the traditional, but also less traditional working positions, such as: architects, designer of construction, structural engineers, MEP systems engineers, budget manager, contractor, OSH manager, investor, developer, project manager, contractor company manager, etc..

Order to develop the students' professional and communication skills in the common working teams already in very stage of education was created an educational project „Skills development for virtual design and management of construction based 5D technologies“. The students worked as profiling experts involved in solving of mutual problems related to specific construction projects. The project was multi-disciplinary oriented. Therefore the experts who were in design team presented the specialists in various areas of design and

management of construction project. They were identified with the idea of teamwork necessary of all civil engineering professions at the stage of design, based on the latest technologies enabling to prepare the construction project, which predisposes to high quality, cost and economic efficiency of future construction, including the elimination of mistakes from lack of coordination and collaboration of specialists. The solving of project was in the time period 2010 to 2011.

4.1. Results of educational project

One of the project results is the training modules „Virtual Construction Team Working“. Their part is „Construction Work Books“ in Slovak and English language given that the abroad students are at faculty.

The training module „Virtual Construction Team Working“ is using within the architectural, engineering and technology practice for simulation of verification, control and management activities through team collaboration of specialists. These activities associated with the design and management of construction project. The training module also allows its using for simulation of partial solution in lectures and courses dealing with the cost calculation, modelling of construction method, management and maintenance of buildings, OSH, etc.. The modules are created through the equipment of virtual laboratory for the efficiency design and management of constructions, materials and technologies through 5D technologies. The laboratory is equipped by the computers for CAD application, including the software needed for design and management of construction project. There is created an environment that enables the integration of the latest project management, information, digitization and virtual technologies, including the BIM technology.

The manual “Construction Work Book” provides a supported study material for proper use of training modules. This manual should provide the more effectively work with the latest technologies for preparation and realization of construction projects.

The particular education project provided the effective using of knowledge and information base in field of construction projects for solution of design and management tasks and training team teaching for preparation of experts. On the other hand, the education of individual specialists for designs, projecting and management of activities related to building process took place in the individual subjects through the specially focused software environment without marked connection and support of teamwork among the particular students. In the present, it is necessary to emphasize that an idea of collaboration among the participants of construction process is also reflected into the innovative pedagogical process as soon as possible. It included the latest trends in field of design and management of construction together with the BIM technologies which represents a main contribution of whole presented project. The creation of individual part of construction projects by students in the BIM environment based on the team working during the educational process is shown on figure 2.

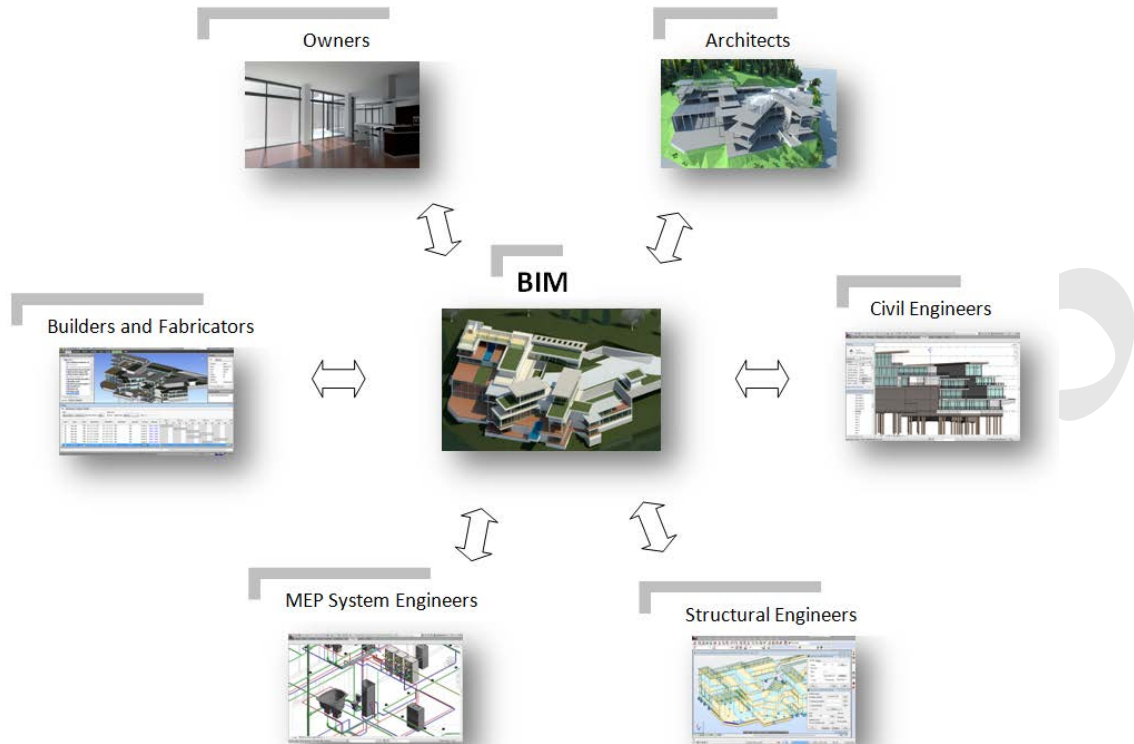


Fig. 2. Design of construction projects in the BIM environment based on team working during the educational process (authors)

The next output of this project is the creation of the database of project solutions of many constructions that are processed by students. This database allows a training of partial solutions associated with particular professions (designers, architects, structural engineers, MEP systems engineers, budget manager, OSH manager, ...) by the “Case Study” within the individual professional courses and lectures.

The outputs of the project can be characterized as follows:

- Main training module, which creates an integrated environment for using of the most modern design, management, information, digitization and virtual technologies in field of preparation and realization of construction project for teaching within the technology practise.
- Additional training module for solving of task within particular specializations by the “Case Study” form,
- Processing of study material for training modules in Slovak and English language for effective using of the most modern technologies for preparation and realization construction projects.
- Database for “storage” of construction projects, for practising the case studies in designing and management construction projects.

We have to be note that main training module can be used also for the designers and engineers from various design and engineers institutions, which presented the contribution of project not only for pedagogical process, but also for practice.

5. Conclusion

Currently, we are witnesses of rapid adaptation of new integrating method of construction processes, innovative automation technologies and more effective work for all participants of building-up process in civil engineering practice. The presented project focused on the skills development for virtual design and management of construction based 5D technologies seeks to develop the professional and communication skills of the students in mutual working teams already in the stage of education process. The students are able to solve the task of current integrated civil engineering industry through applying of adequate computer and graphic techniques of atomizing systems of design whit regard to architectural visualization of construction, its construction design, static and environmental safety and energy intensity. Each of these aspects is applied in real economic and technological environment and reflected the requirements of the latest building practice.

Acknowledgements

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4th International Conference on New Horizons in Education

Virtual laboratory activities in basic biochemistry

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Abstract

In 2009, the Creation Group of Educational Objects in Biochemistry (GCOEB) started to organize virtually practical-laboratory activities in basic Biochemistry for undergraduate students of Pharmacy Course. This occurred through presentation type files (power point) with detailed photos of technical procedures, reagents, equipment and possible results, all associated with challenging questions. These activities are being gradually transformed into virtual versions of the Flash program, mixing photos, cartoons and proposed interactivities. These simulations aim to help the students in the consolidation of the theoretical and practical biochemical knowledge. We believe that these pedagogic tools support the learning of Biochemistry, increase the scientific curiosity, stimulate the presence in the laboratory and never replace it. (www.ufrgs.br/gcoeb/)

Keywords: Educational Objects; Software

1. Introduction

In 2009, some teachers, postgraduate and undergraduate students from the Biochemistry Department of Instituto de Ciências Básicas da Saúde, Universidade Federal do Rio Grande do Sul, constituted the Creation Group of Educational Objects in Biochemistry or, in Portuguese, Grupo de Criação de Objetos Educacionais em Bioquímica (GCOEB). Its activities started when UFRGS-Pharmacy Faculty had its subjects organization modified in 2008. The subject named Biochemistry I was also included in this change. It was transferred from the 4th to 3rd semester and had its class number reduced from 9 to 8 hours, but 2 lab hours were maintained. So, in the first semester of 2009, both subjects, the Old and the New Biochemistry I, were performed simultaneously. In other words, the number of students was doublet. Then, how could we teach our practical classes, if the laboratory had only place for the half?

To maintain the teaching of basic practical Biochemistry concepts we decided to offer different tools to the students. The classical Biochemistry laboratory could be interchanged weekly with the informatics laboratory. Using this strategy, we believed that the students could learn and construct their own knowledge as usual (Eichler and Del Pino, 2006; Behar, 2009).

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Practice simulation using power-point files

To organize the virtual classes we built up power-point files aiming to simulate lab activities by using pictures, identifying phrases and technical questions. All power-point files started with the information of page number inside the Biochemistry protocol book and finished with the suggestion to the students to make the report of the simulation results (Salbego and Trindade, 2008). Fig 1 is a file example: Ascending chromatography on paper of amino acids.

In the same way, other simulation practices were created: Protein properties, Protein and Inorganic Phosphate determination in biological samples, Carbohydrate detections, Glucose determination in plasma obtained from fed rats and from rats submitted to a 24- hour fast, Glycogen obtaining from liver and muscle of fed rats and from rats submitted to a 24- hour fast, and enzymes evaluations (pirophosphatase, succinate dehydrogenase and lactate dehydrogenase).

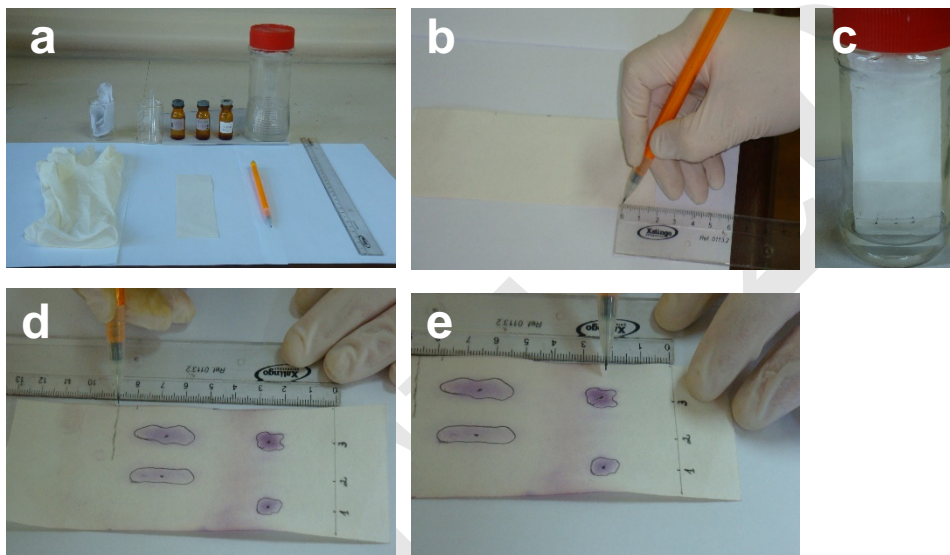


Fig. 1. Ascending chromatography on paper of amino acids. a) Material used in the experiment. b) Demonstration how the chromatography origin was marked. This picture was associated with following questions: What is being used to mark the chromatography origin: pen or pencil? Why? c) Chromatography tank with the migration position marked by the arrow. d) Migration distance of solvent mixture front from the origin marked by pencil. e) Migration distance of the spot center (corresponding to amino acids revealed by ninhydrin) from the origin marked by pencil.

Practice simulation using graphic interface-Flash 8.

In a new stage, we decided to make an improvement in our virtual material adding more interactions to them. Therefore, we again planned the several contents, selected them, edited images and developed them in the graphic interface-Flash8 (Macromedia, 2005; Shupe, 2010). Associated with this development it can be seen: pictures, interactive animated cartoons and challenging questions. These characteristics were introduced in the same virtual object of the Fig.1, but now it is in Flash. In Fig.2, a challenging question is shown: it is suggested to the student that he is supposed to be in the lab, starting the simulation of ascending chromatography. He is challenged to select the group of equipment needed at the first step of the technique. These groups of equipment are assembled in different sets. If the student clicks on Fig 2a, a message will appear indicating that the answer is correct but, if the student clicks on Fig 2b, a message will appear indicating that the answer is wrong. A sentence

appears with both messages explaining that to start the chromatography process, first, it is necessary to transfer solvent mixture into the tank for its saturation (www.bdc.ib.unicamp.br/bdc/visualizarMaterial.php?idMaterial=1136).

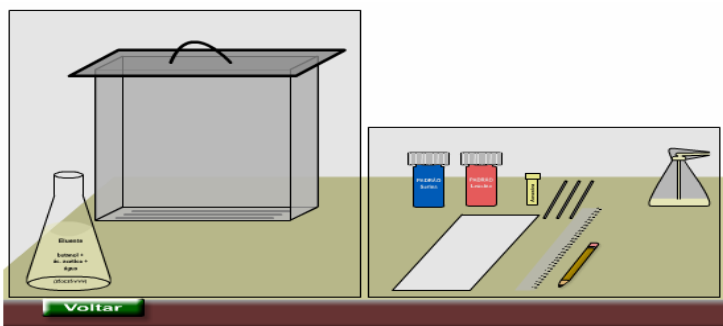


Fig. 2. Interactive animated cartoons in flash-file of “Ascending chromatography on paper of amino acids”.

- a) Chromatographic tank and erlenmeyer with solvent mixture. b) Material used in the experiment: whatman paper, ruler, pencil, standards, sample, glass capillaries and spray bottle

In order to give an upgrade to our learning objects, a scene menu and illustrative films were added to “Determination of serum lactate dehydrogenase (LDH) activity” flash file. This scene is composed of different sets that show the animated reaction, the LDH isoenzyme structures and cell localizations, the metabolic relations, pathologies related to LDH, the method principle of LDH determination and its simulation (Fig.3) (www.bdc.ib.unicamp.br/bdc/visualizarMaterial.php?idMaterial=1165).

SCENE MENU

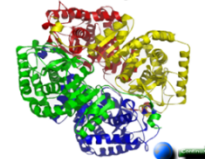
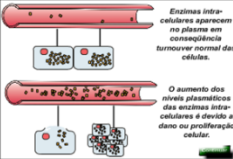
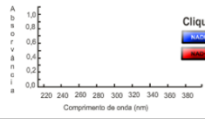

<p>Chemical reaction</p> <p>A Lactato Desidrogenase (LDH ou LD) (EC 1.1.1.27) é uma enzima citosólica que catalisa a conversão reversível do piruvato a lactato na presença de NADH conforme a reação:</p> $\begin{array}{c} \text{O} \\ \parallel \\ \text{C} \\ \\ \text{C}=\text{O} \\ \\ \text{CH}_3 \\ \text{Piruvato} \end{array} + \text{NADH} + \text{H}^+ \rightleftharpoons \text{Lactato} + \text{NAD}^+$ <p style="text-align: center;">Clique para Iniciar Reação</p>	<p>Structure and localization</p> <p>Lactato Desidrogenase</p> 	<p>Metabolic pathways</p> <p>A LDH faz parte da glicólise anaeróbica que ocorre, por exemplo, em células de músculo esquelético em contração rápida e vigorosa, ou na hemácia produzindo lactato. Por outro lado participa do metabolismo aeróbico de células, como as do coração, ou da via gliconeogênica como nas células do parênquima hepático.</p>
<p>LDH molecules in serum</p>  <p>Enzimas intracelulares aparecem no plasma em consequência turnover normal das células.</p> <p>O aumento dos níveis plasmáticos das enzimas intracelulares é devido a dano ou proliferação celular.</p>	<p>Method principle</p> <p>Princípio do método</p> <p>Será determinada, espectrofotometricamente, a variação da absorbância de um dos componentes da reação.</p>  <p>Clique: OK Cancelar</p>	<p>Evaluation</p>  <p>Programa no laboratório Instituto e Técnica de análise da LDH em seres humanos. Software e grupo de equipamentos necessários para a primeira etapa de análise.</p>

Fig. 3. Scene menu in flash-file of “Determination of serum lactate dehydrogenase (LDH) activity”

To make our learning objects more user-friendly, we have introduced some link buttons in the introduction section. We also have inserted multiple information into different interactive sets and some technical and interpretative exercises. These improvements can be seen in “Glucose determination in plasma from fed rats and from rats submitted to 24- hour fast” flash file. Link buttons determine the opening of windows in which the chemical reaction is shown explaining the method principle (Fig.4). In another screen, standards and samples are identified; the absorbance measurement and the standard curve plotting are also animated (www.ufrgs.br/gcoeb/dosagemglicemia/).

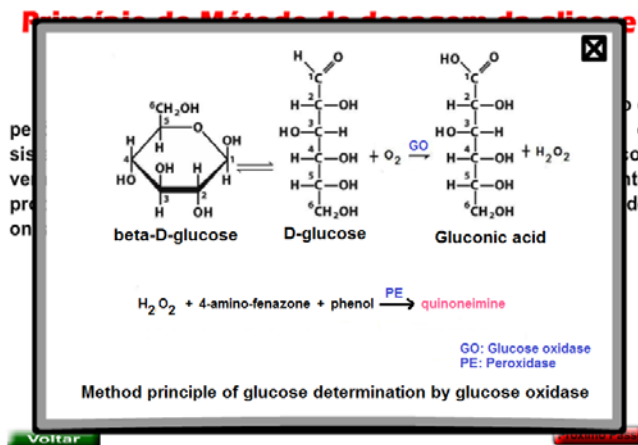


Fig. 4. Interactive animated cartoons in flash-file of “Glucose determination in plasma from fed rats and from rats submitted to 24- hour fast”.

Another stage of our learning objects development occurred when the simulation actions were added through a challenging logic programming. Help buttons, messages of error and of simulation end steps were added. In this way, the learning object “Casein isoelectric point determination” was much more interactive (Fig.5) (www.ufrgs.br/gcoeb/PontoIsoletricoDaCaseina/PontoIsoletricoDaCaseina.swf).

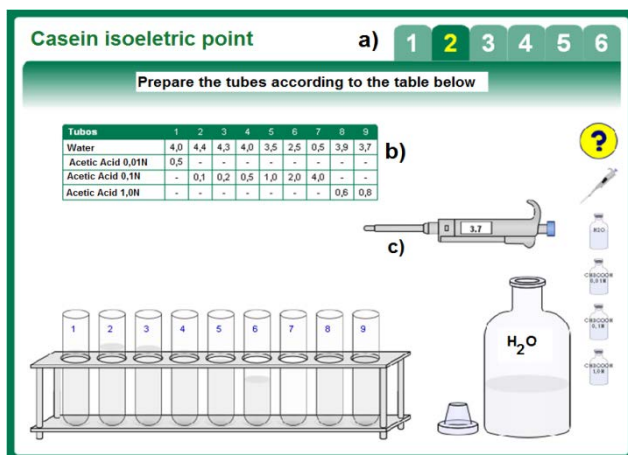


Fig. 5. Interactive animated cartoons in flash-file of “Casein isoelectric point determination”.

- a) several flaps identifying different simulation steps b) table showing the different volumes of reagent to be pipetted; c) micropipette with the possibility to adjust the volume to be transferred from reagent bottles to test tubes.

Evaluation of the learning object: “Ascending chromatography on paper of amino acids”.

This learning object evaluation was performed by the students of Biochemistry I (Pharmacy-UFRGS) of the second semester/2009 (Zanatta et al., 2009) and the first and second semesters/2010/2011. Fig.6 shows that, in general, the students evaluated the LO design and functionality positively, since most of them answered as excellent the questioned aspects. Others LO had similar evaluations for the navigation program, display format and help in learning. (data not shown).

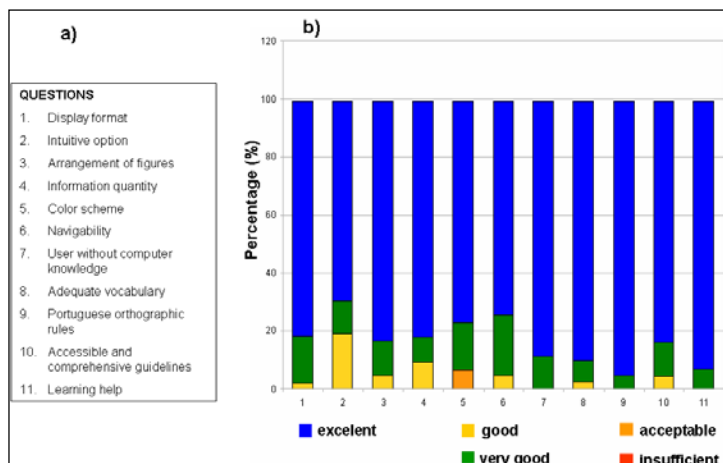


Fig.6. LO evaluation: “Ascending chromatography on paper of amino acids” evaluation.

a) Questions b) Answer percentage

Conclusions

In conclusion, we agree with de Jong et al. (2013) that these pedagogic tools (www.ufrgs.br/gcoeb/) support the Biochemistry learning, the increase of the scientific curiosity and the stimulation of the students' presence in the lab, but they never replace it.

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4th International Conference on New Horizons in Education

Virtual learning environment moodle used for remedial activities in foreign language teaching

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Abstract

This paper presents a project financially supported by Student Grant Competition at our university (TUL). When testing language competence at B2 level, mistakes tend to repeat. We therefore recorded them (oral and written), classified them, searched for the causes and designed remedial activities. The aim was to help students to self-improve, and therefore all the designed activities were interactive, available via Internet and supported by forums - video presentation's focus. This paper focuses on lexical mistakes. It discusses "word" and potential problems it represents. Then strategies and exercises leading to the change and improvement of the ways learners approach vocabulary are presented.

Keywords: vocabulary, form, function, mistakes, remedial activities, autonomous learning, peer-learning

1. Introduction

Vocabulary, as one of the language sub-skills is an important part of foreign language learning. The approach to vocabulary, to ways of its teaching and its importance in the teaching/learning process, has been changing in the last twenty years. Generally it can be concluded that its importance has been growing, supported along with others by the influence of Lexical Approach of Michael Lewis. David Nunan comments on the situation in the following way: "These days, then, the consensus of opinion seems to be that the development of a rich vocabulary is an important element in the acquisition of a foreign language. Certainly, contemporary coursebooks are as carefully structured lexically as they are syntactically (Nunan 1991: 57). Although in some methodology books complaints that "vocabulary is neglected in some courses" (Davies and Pearse: 2000) can still be met, the importance of conscious and systematic instruction in the area of vocabulary has generally been accepted and incorporated into syllabi. Despite this positive tendency, students often make "vocabulary mistakes", which suggests that there is still space for improvement. In order to be able to act, teachers first need to know where the problems are.

2. A word

"Since the beginnings of grammatical study in Europe, the concept of a word has been considered to be of central importance" (Trask 1995). As long ago as ancient India (Panini) and Greece (Dionysius Thrax)

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grammarians wrote about words and even distinguished different parts of speech. The fact that the flow of language both in its written and spoken form can be divided into units called words and their classification into the basic parts of speech is one of the first pieces of “grammatical“ information pupils at Czech schools get. Most people older than seven or eight therefore believe that they know what a word is. But do they really? Linguists feel much less self-assured in this matter and they have not been able to come up a definition of a word which would be approved by all.

This self-obvious approach to words might be one of the sources of the problems learners of English face when learning new words. During their early education they do not learn much about different aspects of words and specific study of words is not usually introduced until they come to university, when it might be too late.

Another source of problems with vocabulary rests in the way students are taught. At lower levels, the presentation and also testing of vocabulary is done mainly by means of translation. The relation between the corresponding words in the two languages is often presented as one-to-one relation. At this stage of learning it is an understandable and often inevitable. Later on, however, more complex work with vocabulary, if possible based on contrastive analysis, is needed. Unfortunately, it is not often provided. In addition to other reasons, one reason is the fact that the textbooks predominantly used are textbooks published by international publishing houses, written by English speaking authors, and aimed for international use. They, therefore, cannot focus on problems specific to learners of a particular language.

3. Vocabulary mistakes

In order to be able to determine insufficiencies and mistakes, one has to know what the required standards are. To know a word basically means to know its form and its use. According to Cook (2001: 72) “words have at least the following aspects:

- form, whether spoken and written;
- grammatical properties, such as grammatical category, ‘arguments’, and idiosyncratic uses;
- lexical properties, such as word combinations and appropriateness;
- meaning, such as general and specific meaning, including components theory and prototype theory.”

Bearing this in mind the most common mistakes students participating in the project made in the area of vocabulary were classified into the following categories:

A) Mistakes in the form a word:

a) mistakes in the pronunciation:

- pronunciation of endings
- stress
- others

b) mistakes in the written form:

- problems with word formation
- others

B) Mistakes in the meaning of a word

- a) using a wrong word
- b) not knowing the word

C) Mistakes in the lexical properties of a word:

- a) wrong collocations

Theoretically, also mistakes in the grammar of words should have been included, but unlike the other areas of mistakes they were rare and therefore are not dealt with in the paper. The categories themselves are not sharply delimited and certain overlaps between them need to be expected, e.g. the use of correct collocations is not just the question of the lexical properties of a word but also of its meaning and partly also its grammar.

Since the main aim of communication, the main means of which is language, is to get a message across, the discussion of mistakes starts and the biggest amount of attention is devoted in this paper to the category of meaning.

4. Mistakes in the meaning of a word

A situation when a student starts to speak about a thing and suddenly stops in the middle of a sentence because he/she does not know the required word in English is commonplace. In such a situation it is probably better to speak of insufficiency rather than of a mistake. Nevertheless the impact on exam results and generally on communication as such can be very negative. Apart from the fact that the transfer of a particular piece of information does not occur, it can discourage the speaker from further communication, which can then indirectly affect the learning process. Students will not learn to speak unless they practice speaking, which means taking an active part in communication as often and as much as possible. As a part of teaching/learning process students should be introduced to and should practise strategies they can use to find a way around unknown words. Such strategies can include e.g. describing the meaning of an unknown word instead of actually using it, starting the idea again and rephrasing it, asking the partner in the conversation for help etc.

A different and more serious situation is the use of a wrong word. In this case students believe that they know the word and that they got it right. It is dangerous for two reasons. The mistake can be of such nature that the listener may not understand the message or may even decode wrong information, which would in both cases result in unsuccessful communication. Or the listener can, despite the mistake made, get the information right, the communication therefore being successful, but the student who made the mistake can solidify his/her wrong assumption.

Can the wrong usage of words be prevented? In order to be able to answer this question, it is first important to see what the words Czech students often get wrong are and whether certain generalizations and common causes can be traced.

The first step is an attempt to classify the mistakes in the meaning of words. The result is as follows:

A) Only partly overlapping meanings of a word in English and Czech

I like going to nature.

I am addicted to my parents.

I visited grammar school in Turnov.

Yesterday I saw on TV and I liked it very much.

In good marriage partners should believe each other.

Did you know that Jana and Jirka are husbands?

B) Completely wrongly used meaning of a word, but the correct word belongs to the same semantic field

In this way of life I manage to spare a lot of money. (save)

There's an area at the airport where you can show aircraft taking off. (view)

C) False friends

- partial: *original, serial*

- complete: *actual, gymnasium, sympathetic*

D) Confusion of words with similar forms, often derived from the same root:

sensible/sensitive, useful/usable, artistic/artificial/ technique/technology, attempt/attend

Category A was by far the most numerous. It will be dealt with in detail later. The second most numerous was category D. The mistakes included in it, however, should not be seen as a systemic problem, but as a part of the natural process of learning because it includes words which usually get special attention in English text books. The same is true about some of the false friends. Other mistakes belonging to categories B and C were individual mistakes of individual students and as such they cannot be systematically prevented.

Mistakes in category A are mainly caused by the fact that students know a word with a certain meaning in English and they see it as corresponding to a certain word in Czech. This corresponding Czech word, however, can have more than one interpretation or meaning and students automatically assume that the English word they originally learned in a different context has all the meanings, too. These mistakes are basically caused by the process of translation between the two languages. Although a lot has been said against the use of translation in

methodologies of foreign language learning, in practice it is often used. It is used by teachers, mainly at lower levels, both for the presentation and testing of new vocabulary and new structures. And it is often used by learners themselves (even at rather high levels). When these students write or even say something in English they first form their ideas in Czech and then translate them into English. This could also have been caused by the frequent use of translation at the earlier stages of learning. Davies (2000:59) warns against the use of translation as a method of presentation of new vocabulary: "it may encourage learners to think in their own language, always translating. It may also encourage learners to feel they have learnt a word or expression permanently once they have been given the translation". When students come across a word for the first time they see it in a certain context and if they are provided with the translation, then it is a translation valid just for this and only for this context. Unless they are systematically trained in the realization that the majority of words have more than one meaning, which is difficult at lower levels and thought of as unnecessary at higher levels, students might easily content themselves with the one to one relation between words in English and Czech. Their motive for doing so in the majority of cases is not ignorance but indolence. It is therefore the responsibility of teachers to repeatedly remind students of the fact that words usually have more than one meaning and that the correspondence between words in English and in Czech is usually valid only in one or several meanings but only exceptionally in all. For this purpose the activities described below might be used. Such concretely targeted practice is useful mainly on higher levels when students' language competence enables them to distinguish the fine shades of meaning.

5. Activities aimed at work with meaning

The activities described and discussed below, which are aimed at the development of students' awareness of and the right use of the interpretations and meanings of words, have been designed for the use with students at B1 to B2 level.

5.1. Work with dictionaries

The first precondition of success is effective work with a dictionary, both bilingual and monolingual. Apart from being perceptive to the form, pronunciation (including the correctly placed stress), grammar, common collocations, etc., students should be alert to the possible problems with meaning. The word addict can serve as an example. Students may meet the word for example in the following context: My best friend became addicted to drugs. They open a bilingual dictionary and find out that addicted means *být závislý*. This however should not be the only step students take while discovering the meaning of the word. They should also check it in an English-English dictionary. The Cambridge Advanced Learner's Dictionary (2003) offers the following definition: an addict is "a person who cannot stop doing or using something, especially something harmful". Since the main meaning is not being able to stop something harmful, it will usually be used with negative connotation. A logical question students should ask here is Can "*být závislý*" be used in Czech with neutral or even positive connotation? The answer is YES. One can *být závislý* on the parents, the partner or help of others. Is *be addicted* the right solution in these contexts? No. The correct English word is *be dependant*. Now students are ready to record the new word, but they should record it with a note that it can potentially be confused with *be dependant* and the explanation of the differences between the two expressions. It is naive to assume that as soon as students meet a word for the first time and they try to store it in their memory, they will remember all the possible meanings of the word. Their attention should, however, be drawn to the potential problems and confusions so that they do not form incorrect connections in their minds.

At the beginning students should be led through this procedure by their teachers. The teacher should record the mistakes students make and be aware of the words which frequently cause problems. In this category of

vocabulary mistakes it is not possible to rely on textbooks because the majority of the textbooks used are designed for international usage.

The next step is to give students pairs of sentences which contain easily confusable words - one word each. Students should discuss the meanings and differences in usage of these words. Once students are able to do this, they can be given several words out of which only a few are potentially difficult and they should be able to find the difficult ones and justify their decisions.

Collecting sentences or contexts in which distinctions between two difficult words are straightforwardly illustrated and then introducing students to them also help a lot. Such sentences and passages might be difficult to find, but once obtained, they become highly valuable.

Shortly after birth babies learn to focus their eyes, and soon instead of seeing they watch. (Lewis 1993: 68)

Work with dictionaries is important as a part of getting the meaning of a word. For the practical language use, however, presentation is not enough. Students need to be involved in practice activities in order to be able to use the words actively and automatically. Below, examples of practice activities are presented.

5.2. Fill-in activities

To facilitate the comprehension and memorization of easily confusable words, first pairs of sentences to which one and then the other word from the confusable pair needs to be filled in are used (see Fig. 1).

Figure 1

<ol style="list-style-type: none"> 1. <i>On one of her novels a famous television _____ have been based. (serial/series)</i> 2. <i>The course consists of a _____ of eight lectures. (serial/series)</i> 3. <i>How long do you have to _____ to become a doctor? (learn/study)</i> 4. <i>In Russian lessons we were forced to _____ long chunks of text by heart (learn/study)</i>

As a more advanced form of a gap-filling activity students are given a mixture of sentences from which the easily confusable or difficult words have been deleted and are asked to fill them back in (see Fig. 2)

Figure 2

1. *I like spending my free time outside, going for walks to the woods. So what I like about my home town is the beautiful _____ around it.*
2. *I usually do not have time to read the whole articles in a newspaper but only _____.*
3. *The first _____ I get of a person I meet for the first time is often wrong.*
4. *The prices in the shop do not _____ to the prices shown in the flier.*
5. *Mrs Black relatives initiated an investigation into her death because she died in suspicious _____.*

5.3. Correction of mistakes activities

Another kind of activity developing the comprehension of word meanings is the correction of mistakes. In the sentences in Figure 3, difficult or easily confusable words were intentionally used with wrong meaning and students try to correct them.

Figure 3

1. *My conscience is pure.*
2. *I have been finding a new job for five month.*
3. *Prior to enrolling at the university I studied at gymnasium.*
4. *I can't believe that he's still alive. All he eats and drinks is clear whiskey.*
5. *I do not know what to do with Honza. He still interrupts and it is extremely difficult to make him do anything.*
6. *The watchers rewarded the actors with loud applause.*

7. *Despite I spent there only three month I know the city well.*

6. Mistakes in the form of a word

The biggest problems with pronunciation of English words appear in the areas which are different in English and Czech. One area of potential problems is the pronunciation of endings and their distinction into voiced and unvoiced pronunciation e.g. the difference between [s] and [z] sound in plural or [t] and [d] sound in the regular form of the past simple tense. Since voiced/unvoiced pronunciation of a consonant based on the pronunciation of the previous letter is not found in Czech and moreover there exists voice neutralization which means that at the end of a word, before even the shortest pause, a voiced consonant cannot be pronounced and it has to be replaced by the corresponding voiceless counterpart, e.g. hrad [hrat], tvrz [tvr̩s], led [let] the above mentioned distinction is difficult for Czech learners. The second most common problem is correct word stress since stress in Czech is always on the first syllable or on a preposition. The last area of problems is understandably pronunciation of sounds which do not exist in Czech. This area, however, seems the least serious, because students are usually more or less successful in imitating the original English sounds.

As for the written form, the biggest problems appeared in the area of word formation. In this area three general causes of the problems might be seen. The first could be called “true friends”. These are usually words which are with a similar form used also in Czech. Such words are dangerous for students because since they can easily understand or infer their meaning, they think that they know them and therefore do not pay enough attention to their actual English form, e.g. rivalry/rivalry; recycle/recycle; evocate/evoke, Judes, analyzation, Italish.

Another area which can be distinguished in terms of certain general characteristics is the area represented by words where the derivational change is relatively small, in other words not a clear, typical suffix is added to the root or stem, e.g. complain-complaint, respond-response, refuse-refusal, etc.

7. Conclusion

The study presented here endeavored to determine the most common mistakes in the area of vocabulary Czech learners of English make so that these mistakes can be focused on and dealt with. The question still remains to what extent such results can be generalized. The outcomes from this study were compared with the book by Don Sparling *English or Czenglish?* (1989) which also focuses on mistakes Czech speakers of English make. Only approximately 30% of words listed were common to both sources. Extensive research would be needed to get any reliable conclusions.

It, therefore, stays mainly a responsibility of teachers to familiarize themselves with the most common problems their students face and design activities targeted at these “specific-to-Czech-learners” problem areas. With the development of new technologies and their introduction into education, the use of such activities is not limited to the classroom, but can be made available to students via Internet, offering not only written exercises as textbooks, but also interactive activities, immediate results and feedback, listening material and well as the possibilities to work on and solve problems jointly by means of forums.

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Virtual learning styles: does gender matter?

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Abstract

Online education has its particularities, challenges and ways to face the pedagogical relationship (students/ professor/ context) associated with that. The ubiquity that the virtual space provides allows greater flexibility of time and space. This flexibility can be reflected not only in access to knowledge, but also, in the way of structuring the training and in possibility to means and methodologies best suited to the needs and ways to students reach the knowledge (learning styles). Our results point out to the predominance of type A, called participatory use style in virtual space. We found significant differences between genders.

Keywords: learning; online learning; learning styles; virtual space; gender

1. Introduction

The formal content's learning is a very complex phenomenon. This complexity lies not only with the nature of the content, but also with the system in which such expertise are taught and still, but not least, with factors related to the individual. Each person has a specific and usual stand facing a learning situation. Research in education long since have demonstrated that different people have different forms and rhythms to learn (Kolb, 1984, Kolb & Smith, 1996). These typical ways of perceiving and process new information, are what, in the literature, is known as *learning styles*.

The system in which contents are conveyed also has influence on the learning process. We are witnessing today, an increasing use of ICT, the Internet and Virtual Spaces in the field of education. The features of these systems pose challenges not only to the type of content that can be served, but also to the teacher and student's role. The pedagogy inherent to them requires a redefinition of some of these roles and implies an alert for certain features and forms to address the virtual space. Therefore, it is necessary an adaptation of the classic learning styles for this new reality – Styles of virtual space use (Barros, 2012) to fit the form to transmit information to the styles of each.

1.1. The meaning of learning

Learning is, without a doubt, one of the most complex human phenomena, due to the quantity and diversity of variables and also to the relationships involved. Understand how individuals appropriate the knowledge is a key to educational development.

For a long time this topic has been discussed and demand for answer to this question has gone through various phases. Thought and research's currents that have guided this subject were not always peaceful, having

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been big differences. According to Illeris (2007) the term learning means *any process that in living organisms leads to permanent capacity change and which is not solely due to biological maturation or ageing* (p.3). Although the learning process is something that occurs inside the individuals, it cannot be considered as a process entirely individual. Rather, the learning process is closely related to the social context where the subject is inserted and come from him or her impulses and needs to learn what is required and conditions how it should be done (Illeris, 2007). In other words, associated with this process are two main concepts - interaction and acquisition. The first concerns the interaction that occurs between the subject and their environment. The second is a process conditioned by internal impulses and influences the interactions established.

The notion of *learning process* began as a process of *acquiring responses*, in which learning was seen as a simple mechanical process where the environment determined the association between stimulus and response. The individual plays, in this process, a passive role and the learning achieved are synonymous with increased right behaviors.

Acquisition of responses' concept was overtaken by the notion of *knowledge acquisition*. The learner begins to gain prominence. This is now seen as an information processor that does not respond directly to the real world, but in the subjective representation of it. The focus is, in this perspective, placed in internal processes, mediators between stimuli and response. The studies undertaken in this direction were synonymous with knowledge acquisition.

The *construction of meaning* is the perspective that aims to explain the learning process (Bourgeois & Nizet, 1999). For these authors, learning is not just a direct link between stimulus and response, but requires the construction of *structures* through reflection and abstraction. This line of thought places emphasis on the construction of meaning in the whole teaching and learning process. Centering on the importance of teacher competences and teaching methodology designed stops, in the constructivist perspective, making sense and emphasis is now placed on the importance of prior knowledge. The capacity of development of the subject, to make significant learning by itself and develop the ability to "learn to learn" is extremely important in this line of thought. The discovery of the person as the center of the learning process and, with it, promoting individual autonomy in this process should be primary tasks in nowadays, because this constantly changing society does not tolerate passive people.

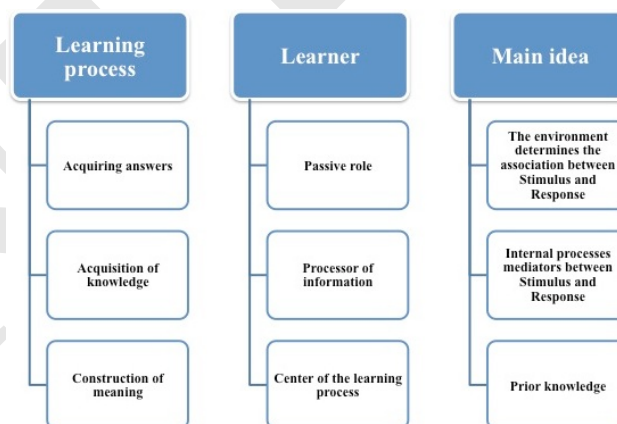


Fig. 1. Summary of the main aspects of the learning process

Briefly, we can say that in a learning process we must take into account the results of this process, what has changed internally by the subject, the way it was processed, the mental processes that took place within the subject and which led to the results. Finally, we have the interaction processes that occur between the individuals, the contents/material and social environment in which they act. The materials or the social environment are directly or indirectly factors conditioning the learning process and finally of learning. That is, learning should be seen from this dual perspective - individual and social, because learning to occur among people has a social character.

1.1.1. The Learning Styles

If need to know how individuals learn is a concern for those who are dedicated to these issues, interpret the differences in each subject during the learning process has also been a phenomenon that made those who are dedicated to it think so much.

The ineffectiveness of education may have its origin in the lack of information on how the individuals perceive, process and retain information.

Nowadays, we know that people have different ways and rhythms to learn. These typical ways of perceiving and processing the new information is what is called *learning styles*. Psychologists, which investigate these individual differences defined the *learning styles* as a tendency to approach cognitive tasks through the use of a preferred strategy or a set of strategies (Kolb, 1984; Kolb & Smith, 1996; Goulão, 2002; Goulão 2008). These are the result of cognitive, emotional, physiological and cultural characteristics which indicate a relatively stable perceives as a learner interacts and responds to the learning environment. In other words, learning styles define the usual manner or characteristic way a learner has to respond to the learning tasks.

Countless experimental studies have shown that students learn better if they used the *correct methods*. We understand that *correct methods*, those that are more according to the learning style of the subjects. In other words, knowing there are different learning styles, by itself, is not the most important. What gives it value is, thereafter, to organize teaching so that all styles are included in a particular learning environment. The learning environment includes the materials, how to teach, the teaching strategies, the materials that support this teaching, the framework in which this activity is happening (Goulão, 2009).

1.1. The Virtual Learning Space

Technological development, as well as the demands of society and the labor market urge to the change of learning environments. The virtual learning environments promote a more active role on the part of students in the construction of their own knowledge (Goulão, 2010). These same environments comprise different formats to support learning that allow a more appropriate choice according to the contents to be transmitted and the learning styles of each.

The research work of Azevedo & Cromley (2004) points to the implications the design of virtual learning environments has for the acquisition of knowledge. It follows, on one hand, the need of teachers being aware of this situation and look to train their students so they regulate their learning. On the other hand, at the environments' designers level so they conceive structures that allow students to proceed to their learning self-regulation.

The school has gained a new dimension and practices that grow in it, as well as the roles assigned to their agents (teachers and learners) also gain a new dimension (Goulão, 2012a).

Associated with virtual learning environments, we find three essential concepts: adaptability, mobility and cooperation. This means that the incorporation of ICT in the educational context, using the virtual spaces, allows a more effective response to the educational challenges by allowing using strategies and tools that best fit to the real needs of their learners. Among them we highlight its learning style. In the mobility concept, we have the flexibility that is experienced in this type of environments and lets you find the information in any area and at any time, freeing learners from the constraints of space and time. Finally, cooperation brings us to the possibility of building networks and knowledge with subjects that do not need to be physically present. Here we have a double advantage. On one hand, to allow responding to individual needs of learners, and secondly, to allow the organization of people in working groups, which lead to the collective construction of knowledge (Barros, Miranda, Goulão, Henriques, & Morais, 2012).

1.2.1. Virtual Learning Styles

Currently, the Internet is a huge repository of information that one can access according to their needs, in turn, bind to aspects of time, context and characteristics.

How you can use this virtual space for learning? As we saw in the discussion about learning styles is its emphasis on the way we work the information as we have mention throughout this section, information is an element that characterizes virtual environments. However, the way this information is available can be very diversified. With that, it is appealing to different individual characteristics and forms of behavior that can be diversified. Will all people look for information in the same way? How the human mind explores the virtual space? Barros (2012) proposes a model that aims to study how people interact with the virtual space and how this can be used for learning. This author defines 4 different ways to use the virtual space - *Styles use the virtual space* that can be identified as follows – Table 1

Table 1. Definition of the Virtual Learning Styles

Style	Definition
Style A <i>Use participatory in virtual space</i>	Using methods and materials that put primacy in contact with groups online, requesting seek situations online. Need to perform group work, participate in discussion forums and give actions to the materials developed.
Style B <i>Use and research in virtual space</i>	Selection and organization of content as form of the user to learn. Learning materials should be facing to construction and syntheses covering the research of a content.
Style C <i>Structuring and planning in virtual space</i>	Develop activities that enhance the applications to develop content and planning activities.
Style D <i>Style of concrete action and production in virtual space</i>	Using the virtual space as a space of action and production

How to predict different styles of use of virtual space to resend different ways to achieve the process of browsing and use of the tool (Miranda, Morais, Goulão & Barros, 2012).

1.2. Purpose of study

The aims of our study were: a) to identify students' profiles that use the virtual space in the online context and, b) to verify if there were differences in those profiles, in terms of gender.

2. Method

2.1. Participants

A total of 100 students participated as volunteers in the survey. 27% are males and 73% are females, had a age range of 18 – 56 years (Av. = 32.1; SD = 11.26).

76% of the participants have been using Internet for more than 5 years and 87% of them use the Internet every day. Our participants use, generally, the Internet at *home* – 59.9% - but also at *University/at Work* – 33.1% - and *in other places* – 7%. They use it *to search for information* (25%), *to communicate* (22%), *with educational purpose* (21.5%), *to work* (16%) and also as *a form of entertainment* (15.7%).

2.2. Instrument

Data collection was made through a questionnaire composed of 3 parts.

Part	Objectives	Questions
I. Identification	Identification of the sample	4 questions
II. Internet usage	Questions to characterize the use made of the Internet	4 questions
III. Virtual Space usage	Identification the users' profile of virtual learning space	40 statements

Table 2. Questionnaire

In Part II of the questionnaire, the question about the number of years of Internet use was asked to indicate only one of the hypotheses. In the remaining questions it was possible choose more than one hypothesis. In Part III we used the questionnaire *Styles Using the Virtual Space* (Barros, 2012). Participants should only indicate the statements that were consistent with their style of using virtual space.

2.3. Procedure

Participants were asked to complete the questionnaire at their own place and online. All responses were anonymous.

2.4. Data analysis

We proceeded to the analysis of participants' responses according to the type of questions. It was the purpose of this research to examine sex differences. To analyze the behavior of the sex variable we used the T test (t-student).

3. Results

3.1. Virtual Space Style: General results

Now, we will do the analysis of the usage profiles of the virtual space. As we saw earlier, theory points to 4 styles using the virtual space. We will see how it behaves in the sample, overall, with respect to this variable. The results obtained are shown in Table 3.

Table 3. Distribution of Internet usage profiles

	Profile of use of the Virtual Space A	Profile of use of the Virtual Space B	Profile of use of the Virtual Space C	Profile of use of the Virtual Space D
N	100	100	100	100
Mean	4.59	3.38	3.01	2.46
Std. Deviation	1.891	1.819	1.850	1.604

As can be seen there is a style that stands out compared to others. We have a predominance of the style A, for the others. The D style is the one with a lower value.

3.2. Virtual Space Style: Results by gender

In this space we will present the results obtained for the study of the usage profiles of the virtual space taking into account the variable gender.

Table 4. Distribution of Internet usage profiles by gender

	Gender	N	Mean	Std. Deviation
Profile of use of the Virtual Space A	Female	73	4.25	1.899
	Male	27	5.52	1.553
Profile of use of the Virtual Space B	Female	73	3.08	1.689
	Male	27	4.19	1.942
Profile of use of the Virtual Space C	Female	73	2.62	1.587
	Male	27	4.07	2.111
Profile of use of the Virtual Space D	Female	73	2.22	1.493
	Male	27	3.11	1.739

As it can be seen, although there are differences in the averages in the two genders, the profile pattern maintains. In other words, the profile of most common use in both genres is A. However, it is noted that, despite the existence of the same standard average score on each profile, depending on the gender have values quite different.

To test if the differences found in the averages are statistically significant, for a significance level of at least 5%, we proceeded to calculate the statistic *T Student*. For this we have the following hypotheses:

H_0 = The average differences, in the different usage profiles of the virtual space, between men and women are not statistically significant.

H_1 = The average differences, in the different usage profiles of the virtual space, between men and women are statistically significant

The results, as well as the level of significance are presented in Table 5.

Table 5. Students T test results and their significance levels

	<i>T</i>	df	Sig.(2-tailed)	Level of significance
Profile of use of the Virtual Space A	-3.114	98	.002	<i>S</i>
Profile of use of the Virtual Space B	-2.782	98	.006	<i>NS</i>
Profile of use of the Virtual Space C	-3.717	98	.000	<i>S</i>
Profile of use of the Virtual Space D	-2.362	98	.013	<i>NS</i>

From the values obtained we can say that there are statistically significant differences in the use of Styles Virtual Space A and C, between men and women, with a confidence level of 98% and 100%, respectively.

To complete our analysis we verify that there is a dependency between the different styles Using Virtual Space and the variable gender. Our study hypotheses were as follows:

H_0 = The use of different styles Using Virtual Space and gender of the participants is independent.

H_1 = Exists dependence between the use of different Styles Using Virtual Space and gender of the participants.

To study this dimension we used the Kruskal-Wallis test, for a significance level of 5%. The results obtained are shown in Table 6.

Table 6. Test results and respective decision

Null Hypothesis	Sig	Decision
The distribution of Profile of use of the Virtual Space A is the same across categories of Gender	.005	<i>Reject the null hypothesis</i>
The distribution of Profile of use of the Virtual Space B is the same across categories of Gender	.053	<i>Accept the null hypothesis</i>
The distribution of Profile of use of the Virtual Space C is the same across categories of Gender	.000	<i>Reject the null hypothesis</i>
The distribution of Profile of use of the Virtual Space D is the same across categories of Gender	.071	<i>Accept the null hypothesis</i>

The results confirm the existence of a relationship of dependence between the Styles using Virtual Space A and C and the gender of the participants. The same is not true with respect to Styles Using Virtual Space B and D.

4. Discussion

As we previously said, the aims of our study were: a) to identify students' profiles that use the virtual space in the online context and, b) to verify if there were differences in those profiles, in terms of gender. The results obtained through our questionnaire allow us to establish the existence of different styles of virtual space usage. Among them we highlight the style A that is defined by *the using methods and materials that put primacy in contact with groups online, requesting seek situations online. Need to perform group work, participate in discussion forums and give actions to the materials developed.*

Regarding the second part of our aim that aimed to verify that there were differences in the use of styles depending on the gender of the subjects we found that, although there is a pattern common to both genders, there is a dependency relationship between Styles of Virtual Space usage A and C and the gender of the participants. In other words, the fact that the individuals chose these two styles are not independent of their being men or women. This relationship is also confirmed by the statistically significant differences between the means of these two styles for the gender of the subjects. Women have a lower average in both styles. These results confirm findings from previous studies that point to significant differences in learning styles (Garland & Martin, 2005; Philbin et al. 2005; Wehrwein, Lujan & Di Carlo, 2007; Goulão, 2012c) and the use of virtual space, by men and women (Lee, 2002; Barrett & Lally, 1999; Yukselturk & Bulut, 2009).

5. Conclusion

Today we live in a society that appeals to competencies that enable individuals to adapt quickly and effectively to new challenges. In this sense, research has shown the importance of encouraging our students to control their learning process. Notes the impact of a pedagogy increasingly personal, social and participatory (McLoughlin & Lee, 2010).

The introduction of ICT in formal education system allows the introduction of new tools in this context and with this new scenarios and new purposes.

These new scenarios allow responding more effectively to the particular characteristics of the subjects, in particular, their learning style. This implies a formal structure of the virtual space in what concerns the type of learning materials, as well as the activities to be provided, which should be diversified in order to meet the different learning styles of students. It must be included diverse strategies to respond to individual differences, the rhythms and styles of learning.

The impact of learning styles in teaching/learning process remains a topical issue. The environments in which this process occurs are constantly changing and how they can maximize to meet the individual characteristics of learners is extremely important in the educational field. The results of our research showed, in general terms, that there are different ways to use and work with the information and resources available on the Internet. In more particular, we have found an accentuation in the use of certain styles depending on the kind of subjects.

To improve the learning process it is necessary to create environments adapted to the needs and characteristics of their users. For a teacher using virtual learning environments, knowledge of the learning style of the students is extremely important (Manochehr, 2006). The virtual space, by definition, makes possible new ways for students to interact with information and, consequently, new ways of learning (Barros, 2012). It is the job of teachers who work in these environments, to help learners to manage these situations. For this purpose, the knowledge of the different styles of the virtual space usage is a precious help to be able to design learning environments that best fit the needs and styles of use of subjects.

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Virtual tools: virtual laboratories for experimental science – an experience with VCL tool

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Abstract

A fundamental aspect within the configuration of the new European Higher Education Area (EHEA) is that students play an active role in their own learning process. On this educative model of academic formation, the teacher participates as a guide during the teaching-learning process of the student and so he or she must apply constructivist learning models in which new technologies are substantially present. In this regard, the use of tools such as virtual laboratories (which can be found as interactive resources on the web or in digital format from several publishers) can be very effective, for they allow the student to approach real systems and do research on their behaviour with regard to the modification of certain parameters. An experience on the use of the VCL tool on several Chemistry classes will be presented in this contribution. These resources are very useful for the acquisition of several competencies not only when used as teaching materials, but also when integrated as part of the teaching methodology, on an environment of face-to-face or virtual classes, thus reinforcing the teacher-student cooperative work within a constructivist learning context.

Keywords: tutoring; virtual tools; virtual laboratory; cooperative work; teaching material; constructivist learning.

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1. Introduction

1.1. Question posed

The EHEA setting poses an important challenge on the academic environment at the university level, since it demands a methodological change on the complex teaching-learning process. This new horizon makes it clear that this process is focused on students and their own role in the learning process, as well as on the acquisition of competences. In this way, students assume a very active role in their training and acquire responsibility towards themselves and their learning process. Only then can one of the biggest challenges of this new teaching-learning paradigm be achieved, which is the students' acceptance that this process must continue through life and it is not to be restricted to their time spent behind the university walls. Within this context, finding tools that can be implemented in the teaching methodology is very useful, so they reinforce that necessary sense of responsibility in the student and provide him or her with the necessary learning autonomy that he or she must develop through life. In this respect, virtual laboratories are very useful, since they can either be used as a tool for support and reinforcement so students make the most of their knowledge, or they can be implemented as a teaching resource in expository class sessions in order to encourage a participatory, constructivist environment. In addition to that, the acquisition of competences in the use of ICT (Information and Communication Technologies), which are of the outmost importance for the students training, is enhanced through the use of virtual laboratories.

1.2. Contextualization of the question posed

In the Prague communiqué (2001), there is a reference to this type of permanent learning pursued by the EHEA, which is based, to a great extent, on the use of ICT: 'Lifelong learning as a key factor in the EHEA, given that, in the future Europe based on a knowledge-driven society and economy, the strategies to learn throughout life will become more necessary in order to confront the challenges of competitiveness and the use of ICT.'

According to J. Salinas (2004): 'The training methodologies relying on ICT lead to new conceptions of the teaching-learning process that enhance the learner's active involvement in the learning process; the attention to the emotional and intellectual skills at different levels; the preparation of young people to take responsibilities in a rapidly and constantly changing world; the students' flexibility to enter a workplace that will demand lifelong learning; and the necessary competencies for this continuous learning process.' These quotes point out the importance of the continuous renovation of knowledge and of the correct use of the technological means available. These new technologies are very diverse and their incorporation into the classroom is subjugated to some criteria, according to Sangrá and González Sanmaned (2004): 'Two core elements are necessary for the integration of ICT to become a functioning reality that provides added value: the first one being a reorganization of the institutions that endows those technologies with the necessary agility to respond to the last demands of the society of information and knowledge, and which allows them to provide the requested support to be able to enhance teachers' work. The second one, the development of teacher training programs which fill the current gaps in the field and ensure that teachers are trained to properly use ICT resources in their classrooms.'

Overall, the advantages of integrating ICT in university teaching are, among others, the following (Díaz (2004), Rosado (2005)):

- Increasing methodological diversity.
- Increasing accessibility and flexibility.
- Promoting the student's leading role.
- Improving the presentation and comprehensiveness of certain types of information.
- Encouraging cooperative work.
- Improving individual work.
- Gaining access to new environments and situations.
- Optimizing resources and costs.

ICT play a key role in the practice of this conception of the learning process focused on the learner, since they can constitute learning experiences related to open problems and tasks that require a critical and reflective thought (Alba Pastor (2005)). These technological tools allow the student to enhance his or her responsibility in the search of materials and documentation beyond class notes, and they provide key support for the student's experimentation of his or her own learning process

ICT, as this paper attempt to demonstrate, offer a wide range of possibilities and are very diverse in nature. In the present work we will focused on one of them, Virtual Laboratories or IT tools that simulate a test laboratory from a virtual learning environment. As we have seen, the cause for Virtual Laboratories basically emerges from the need to create student support systems for their laboratory work with the objective of optimizing the time spent on doing those tasks. Nevertheless, the concept of Virtual Laboratory has been expanded throughout the last two decades (Gámiz Sánchez (2009)):

The doctoral thesis '*Modelo de Referencia de Laboratorios Virtuales y Aplicaciones a Sistemas de Tele-educación*' (Rodrigo (2003)) ('Reference Model of Virtual Laboratories and Applications to Tele-education Systems') gathers most of the historical review related to laboratories. In this regard and to summarise, the following must be noted:

- 1984: the concept of virtual tool appears as an instrument;
- 1992: the term 'virtual laboratory' is coined to refer to a tool used for the development of a simulation laboratory;
- 1994: a study conducted by the Vanderbilt University in USA is presented. In this study, a virtual laboratory is designed, based on simulation, as a support tool to traditional laboratory work, and it concludes with this tool's need to learn the basic abilities and the operation of the equipment, which contributes to optimize students and laboratory personnel's time;
- 1995 – 1996: several works appear. They defined the requirements and necessary components for the success of a virtual laboratory and of any other distance learning system;
- 1997: A review of the rules related to virtual instruments appears in the IMTC conference. This same year, researchers from the Illinois University present a complete electronic instrumentation laboratory available to users through the Internet. This is the first *virtual laboratory with electronic instrument remote control in operation*;
- 1998: A detailed model of a virtual simulation laboratory is described in the IMTC conference and the associated ETIMVIS'98, as well as a teaching laboratory proposal in which students use virtual tools to make their experiments.

- 1999: A detailed explanation on how to set up a virtual laboratory with available commercial elements is described in the IMTC, together with the basic requirements to confront when thinking about designing a virtual laboratory;
- 2000 – present time: Awareness of the importance of virtual laboratories on several teaching fields is increased and diverse virtual laboratories are described in conference articles and magazines, where different methods used in the development of virtual laboratories are described in detail, and possible solutions to improve or implement the performance of virtual laboratories are commented.

2. Methodology

2.1. Contextualization of the question posed

The study of the implementation of the ‘Virtual Chemistry Laboratory’ (VCL) tool within the teaching methodology was carried out during the academic years of 2010–2011 and 2011–2012 with reduced groups (< 15 students) in the following subjects:

- i) ‘Introduction to Materials Science’, a third-year subject from the Chemistry Science Degree of the University of Alicante, with 6 theoretical credits and a practical credit (years 2010 – 2011 and 2011 – 2012);
- ii) ‘Solid-state Chemistry’, a six-credit elective subject from the Nanoscience and Molecular Nanotechnology Master’s Degree of the University of Alicante (year 2010 – 2011).

2.2. Materials

The tool ‘Virtual General Chemistry Laboratory’ (VCL), corresponding to a Prentice Hall’s publication, edited by the Pearson Publishing company on its 3rd edition from 2009 with ISBN: 978-607-442-210-8, has been chosen for this work. This tool is highly versatile as far as its scope of application in a classroom is concerned. This publication provides a VCL installation CD and a paper guide for the execution of each practical session proposed.



Fig.1. (left) ‘Virtual General Chemistry Laboratory’ book cover (ISBN: 978-607-442-210-8); (right) its corresponding CD where the VCL computer program is found for the virtual experiences.

This tool has a package of realistic and complex simulations that encompasses the different experiences that can be carried out in a general chemistry laboratory. In these laboratories, students enter a virtual environment where they are free to make choices and decisions similar to those confronted in an actual laboratory. At the same time, students can experiment the consequences of a good practice or a malpractice in laboratories. Experiments include simulations of qualitative inorganic analyses, fundamental experiments of quantum chemistry, properties of gases, titration experiments, scanning calorimetry, organic synthesis and qualitative organic analysis.

2.3. Instruments

The instrumentation of Virtual Laboratories in the classroom can vary depending on the type of virtual tool we are talking about. Thus, implementing a virtual laboratory tool that is available as a free and toll-free program (free online software) can be relatively easy. However, if it is not a free license program like the one used in this work, the economic factor, so important given the current situation, must be taken into account. The user license for ‘Virtual General Chemistry Laboratory’ (VCL) is acquired when buying the book. If the methodology to be implemented involves using this tool in the classroom in an expository context, this expense is economically viable since each unit costs a little amount of money making it affordable for any institution. Nevertheless, if the aim is to provide a tool for students to be able to work from home, the purchase of so many programs as students

enrolled is not viable. On the other hand, it is more viable to negotiate the purchase of multiple licenses with the publishers (each publisher has its own policy on this regard).

2.4. Procedures

In this study the VCL tool has been exploited in two aspects:

- On the one hand, it has been included as a fundamental element in the explanation of new chemistry concepts in the classroom; to that end the tool has been introduced to the students and it has been used for the execution of several experiences. Afterwards, a debate on the issue has been generated.
- On the other hand, the program has been provided to a small number of students (10 in total), so they could assess from home its utility as reinforcement to the practical sessions of the different subjects and to the concepts seen in class.

In particular, the experiences for which VCL tool has been used are the following:

- a) Experiences carried out in the classroom in the context of expository sessions: i) Thomson's cathode ray tube experiment; ii) Rutherford's scattering experiment; and iii) boiling point elevation.
- b) Experiences carried out by the students: i) counting of protons, neutrons and electrons; ii) specific heat of aluminium; and iii) freezing point depression.

Students were handed out an anonymous survey in order to collect their opinions with regard to this tool. The results are presented in the following report.

3. Results

The use of this tool both by the teacher in the classroom and the students at home has generated the following results explained in detail. Teacher's opinions derive from: i) his experience with the VCL tool inside the classroom, based on his perceptions with respect to the students' response, both in the required time for the understanding of the concepts explained and the opinions obtained from the debate generated around the question posed; and ii) the perception in the students' use of this tool at home based on the resolved tutoring sessions, doubts in class; etc. On the other hand, the students' criteria with respect to this tool, innovative for them while offered by the teacher for free-use at home, have been collected in the form of an anonymous questionnaire.

- **Teacher's opinions**

In general, the use of this tool has been very favourable. The advantages of its use in the classroom are multiple since it is a tool that provides a lot of visual information (hence, direct reception), interactive (it holds both the teacher's and the students' attention for the achievement of the different steps required for the accomplishment of a experience) and produces immediate results, exempts from the circumstantial problems which often arise in an actual laboratory (this makes it perfectly possible for the teacher to plan and schedule the activity in terms of time used in the classroom). However, this tool is not exempt from some disadvantages. Advantages and disadvantages of using VCL detected by the teacher are collected in the following charts:

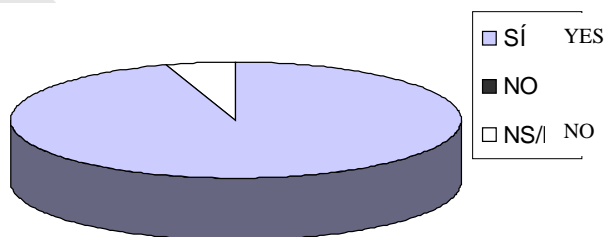
Table 1. Compilation of advantages and disadvantages of using the VCL virtual tool, according to the teacher’s opinion, both for its use in the classroom and the use made by the students at home.

Use in the classroom by the teacher	
For the teacher	
Advantages	– possibility of adding laboratory experiences in the classroom – perfect time control of the experiences, since there is no risk of experimental error
Disadvantages	– the activities require extensive planning and a significant investment in time to prepare – it creates a situation of dependence on computer tools
For the students	
Advantages	– better understanding of the topics covered by relating them to experiences – greater ease in relating phenomena and theories
Disadvantages	– lack of interaction with the experience
Use at home by the students	
For the teacher	
Advantages	– it helps to avoid overlapping with the practical sessions of other subjects – it reduces costs and assemblages, being a cheap and efficient alternative to an actual laboratory
Disadvantages	– heavy dependence on computer tools
For the students	
Advantages	– there is no risk involved in experimenting – absolute time flexibility to perform the exercises – it is a self-learning tool
Disadvantages	– misjudgement of the laboratory circumstances

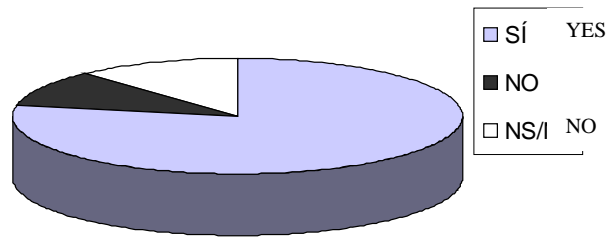
• Students’ opinions

Students filled up a simple questionnaire voluntarily and anonymously, in which they were asked questions related to their opinions on the use of the VCL virtual tool. The questions posed and the graphics created according to their answers given are presented below.

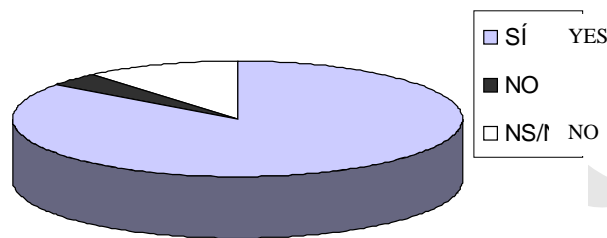
a) Has the use of the VCL virtual tool contributed to understand the concepts explained?



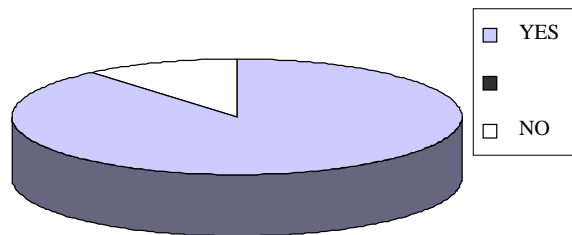
b) Has the use of the VCL virtual tool served to optimize your study and learning time, reducing considerably the time spent on each studied concept?



c) Has the VCL virtual tool helped your self-learning?



d) Do you think that the VCL virtual tool can be useful at an interdisciplinary level for other subjects dealing with the studied concepts?



4. Conclusions

Generally speaking, the use of the VCL virtual tool has produced very positive results, both in its implementation in expository lectures in the classrooms and in the students' use of this tool from home. Nevertheless, while it is true that it is not free of some inconvenience, it provides multiple advantages as it is demonstrated by the results obtained from all the experiences collected by the teacher and from the survey handed out to the students. Any virtual laboratory tool that can be tested positively can be considered an extremely favorable methodological tool in the EHEA context, since it encourages, among other things, students' active participation in a constructivist environment and self-learning. Moreover, it is a perfect complement to the actual laboratory experiences, but never a replacement.

Acknowledgements

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Appendix

The pictures below are examples of this VCL tool at different levels of an experience.

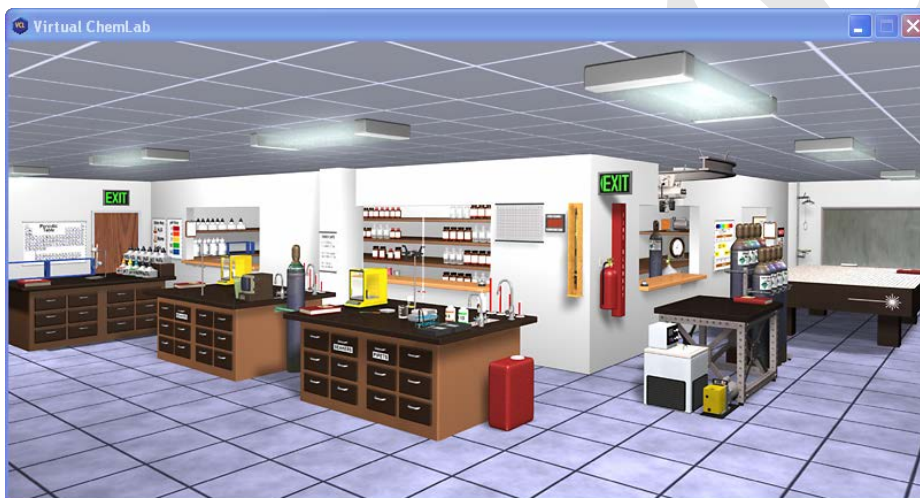


Fig. 2. Overall look of the Virtual General Chemistry Laboratory, in which different work areas are shown.

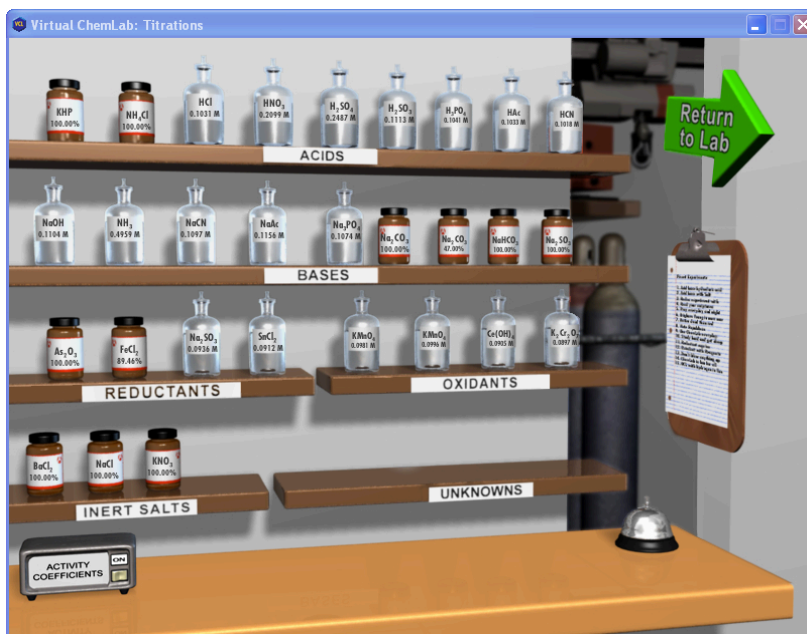


Fig. 3. The Virtual General Chemistry Laboratory provides a realistic environment where all sort of reagents can be found in different storage facilities.



(a)



(b)

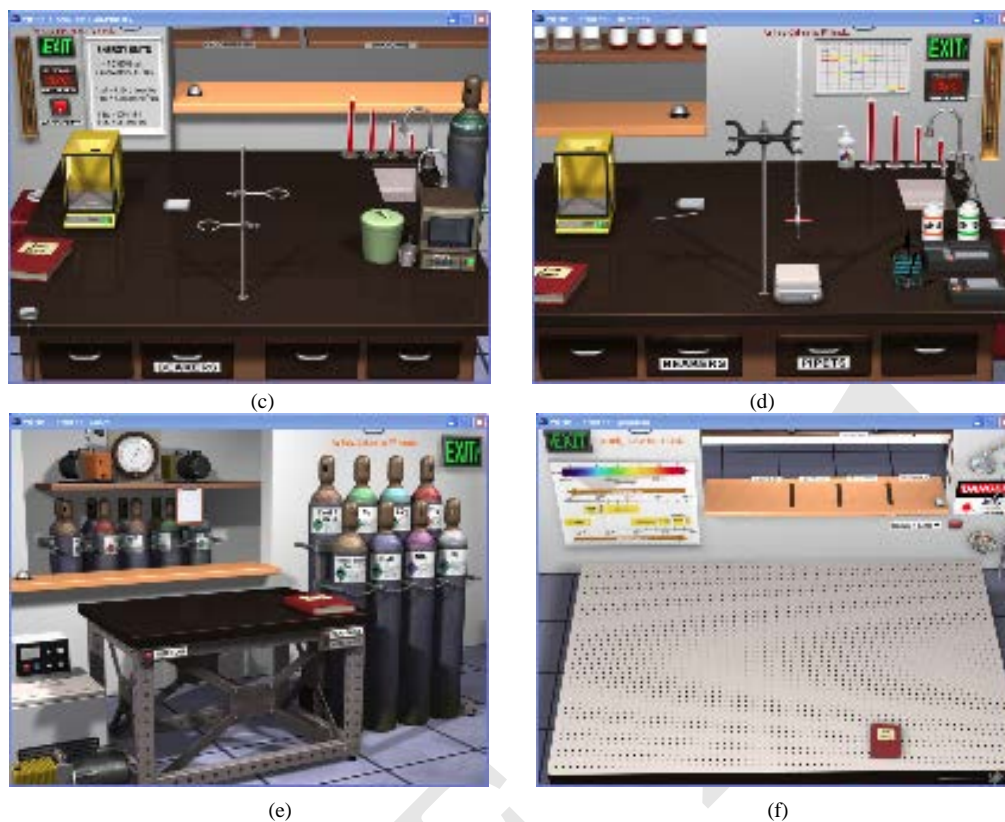


Fig. 4. Images obtained from the Virtual General Chemistry Laboratory: a) electronic book of exercises; b-f) different rooms for the experiments of Atomic Theory, Reactions and Stoichiometry, Thermodynamics, Colligative Properties, Properties of Gases, acid-base Chemistry, and Descriptive Chemistry.

4th International Conference on New Horizons in Education

Vocational self-efficacy and academic motivation levels of technical and vocational pre-service teachers (example of Marmara University)

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Abstract

Low self-efficacy and academic motivation have been adduced for poor performance of students by teachers and educators. Determination of effective factors on vocational self-efficacy and academic motivation levels of technical and **vocational pre-service teachers** can be useful in order to improve better training programs and academic performance. In this study a group of technical education faculty seniors' vocational self-efficacy and academic motivation levels were studied. The aim of the study was to identify the effective factors on vocational self-efficacy and academic motivation levels of **technical and vocational pre-service teachers**.

Keywords: Pre-service teacher, vocational self-efficacy, academic motivation.

1. Introduction

Low self-efficacy and academic motivation have been adduced for poor performance of students by teachers and educators. It is observed that pre-service teachers as being seniors of technical and vocational education faculty have similar motivational and vocational self-efficacy problems. Self-efficacy determines how people feel, think, motivate themselves and behave (Bandura, 1994, 1997). Self-efficacy is defined as people's beliefs about their capabilities. Such beliefs produce these diverse effects through four major processes. They include cognitive, motivational, affective and selection processes. Students with low self-efficacy believe that cannot be successful and thus are less likely to make any effort. They consider that challenging tasks as treats that are to be avoided. Students with high self-efficacy are more likely to challenge themselves with difficult tasks. They are intrinsically motivated (Bandura, 1993). Motivation is another important issue and studied for years by researchers (McClelland, Atkinson, Clark & Lowell, 1953; Atkinson & Feather, 1964). In this study, motivation is examined within the framework of self-determination theory (Deci, 1975; Deci & Ryan, 1985). According to self-determination theory (Deci & Ryan, 1985), there has been a dialectical relation between people, as innately active organisms, and the social environment. In this theory, humans are assumed to be active, growth-oriented organisms that have an innate desire for stimulation and learning from birth, which is either supported or discouraged within their social environment (Deci & Ryan, 1985; 2000). Within the social environment people attempt to satisfy their three basic needs. These three innate or fundamental psychological needs are competence,

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autonomy and relatedness (Ryan & Deci, 2000). In this theory; at the end of the interaction between these needs and the environment three specific types of motivation are differentiated: firstly; intrinsic motivation, secondly; extrinsic motivation and thirdly; amotivation. From different kinds of definitions, motivation has been conceptualized with regard to inner forces, enduring traits, behavioral responses to stimuli and sets of beliefs and effects (Evans, 2000). Practically, motivation is also known as academic engagement and is identified as the most influential of all the factors that affect student performance (Francis et al., 2004). A child that is academically motivated wants to learn, likes learning-related activities and improves academically (Cunningham, 2003). Many factors influence the development and use of motivation strategies of students (Ellis & Worthington, 1994; McCaslin & Hickey, 2001; Pintrich & De Groot, 1990; Pintrich, & Schunk, 2002; Renchler, 1992; Winne, 2001; Zimmerman, 1990, 1994, 2001). One such factor is the student's perception of themselves as being intrinsically or extrinsically motivated to engage in learning activities within educational environments (Barron & Harackiewicz, 2001; Elliot & Thrash, 2001). Aksan and Koçyiğit (2011) studied with a group of Turkish students and they found that self-efficacy levels of students were very low. From this result, it can be implied that the students also have academic motivation problems. In another study, Turkish teachers and school counselors reported that low academic performance, motivational problems and test anxiety are very common in today's classrooms (Uzbaş, 2009). It is observed that pre-service teachers (seniors of technical education faculty) have also similar problems. Unwillingness, low expectation for the future and low motivation were very common among pre-service technical teachers. A group of seniors expressed themselves that they do not feel ready for the teaching profession. Such kinds of data demonstrate a need to examine pre-service teachers' self-efficacy and motivational problems. The aim of this study is to examine the impacts of demographic factors on pre-service teachers' self-efficacy and academic motivation levels. It may contribute to perform an integrated study with all the possible basic factors which affects self-efficacy and motivation.

2. Method

2.1. Participants

In this work, study group of this research consisted of 404 seniors (pre-service teacher) from Technical Education Faculty of Marmara University, Istanbul, Turkey. Data were gathered within two semesters; 2011-2012, autumn and spring. All group consisted of seniors. Participation was arranged voluntarily, with informed consent in the classroom environment. Students were recruited without regard to gender. Instructions were read aloud by trained proctors before students began responding. Sufficient time was provided for all students to complete each instrument.

Table 1. The demographic characteristics of Participants

		Frequency	Percent	Valid Percent	Cumulative Percent
Gender	Female	233	57,7	57,7	57,7
	Male	171	42,3	42,3	100,0
	Total	404	100,0	100,0	
Age	19-21	68	16,8	16,8	16,8
	22	129	31,9	31,9	48,8
	23-25	177	43,8	43,8	92,6
	26	30	7,4	7,4	100,0
	Total	404	100,0	100,0	
Field	Textile teacher	303	75,0	75,0	75,0
	Computer teacher	101	25,0	25,0	100,0
	Total	404	100,0	100,0	

Average age was 22 (range=19-35, mean=22.93, Std. dev. =1.89, min. =19, max. =35). 43% of the participants were male and 57% were female. 25% were computer pre-service teacher and 75% were computer pre-service teachers as can be seen in Table 1 above.

2.2. Measures

A twelve item questionnaire was used to gather demographic variables. This questionnaire included questions relating to age, gender, and field, academic achievement level, whether he/she was happy from his /her school and whether the school was chosen by himself/herself or not. Academic achievement levels of students' were assessed via a self- determination question. Additionally, a self-efficacy scale for computer teachers', a self-efficacy scale for textile teachers' and an academic motivation scale were used in this study. Totally, test sets consisted of two scales and one questionnaire for each participant.

2.2.1. Teacher Self-Efficacy Scale (TSES)

Pre-service teacher self-efficacy scale assessed via two different Turkish scales in this study. One of them was originally developed for computer education department's seniors (Akkoyunlu, Orhan & Umay, 2005). Second form adapted from this original form for textile education department's seniors by researchers. The scale consists of 12 items. Responses were based on a five-point scale from 1 (never) to 5 (almost always). Students were asked to indicate the degree to which they agreed with the statements, for example, "I feel myself adequate to motivate my uninterested students for courses in classroom". Cronbach's alpha for this sample was 0.79 (N=404, n=12) in this study.

2.2.2. Academic Motivation Scale (AMS)

The AMS (Vallerand et al., 1992; 1993, Ünal-Karagüven, 2012) consists of 28 items and seven subscales. The AMS was developed within the framework of self-determination theory (Deci & Ryan, 1985). The scale is divided into seven subscales, reflecting one subscale of a motivation, three subscales of intrinsic motivation and three subscales of extrinsic motivation. Seven subscales names; Motivation to Know (IMTK), Intrinsic Motivation to Accomplish (IMTA), Intrinsic Motivation to Experience Stimulation (IMES), Extrinsic Motivation External Regulation (EMER), Extrinsic Motivation Introjected Regulation (EMIN), Extrinsic Motivation Identified Regulation (EMID) and Amotivation (AMOT). The items are rated on a seven-point scale, ranging from 1 (does not correspond at all) to 7 (corresponds exactly). Examples for the items; "Because I experience pleasure and satisfaction while learning new things." and "I don't know; I can't understand what I am doing in school". Only five subscales were used in this study, these were; IMTK, IMTA, EMIN, EMID and AMOT. Each subscale consists of four items; thus, subscale scores can range from four to twenty-eight. A high score on a subscale indicates high endorsement of that particular aspect of academic motivation. College version of the AMS was used in this study. Cronbach's alpha was 0.89 (N=404, n=28) for this group.

3. Findings

Table 2 presents, sample sizes, means, standard deviations and inter correlations among variables used in the study. As can be seen in Table 2, all inter correlations among dependent and independent variables are significant and mostly positive. As can be seen in column 7 vocational self-efficacy and academic motivation subscales are positively related. Additionally, as can be seen in Table 2 and column 8, 9, 10 all inter-correlations among five academic motivation subscales are positively significant, except amotivation. Amotivation is negatively correlated with other subscales of academic motivation. All four motivation subscales are significantly and mostly positively correlated with each other.

Table 2. Means, standard deviations and bivariate correlations among variables

Variables	M	SD	1	2	3	4	5	6	7	8	9	10	11
1.Gender			1										
2.Age	22	1.89	.326**	1									
3.Field			.500**	.400**	1								
4.Happy			-.007	-.068	.000	1							
5.School			-.027	-.026	.101*	.409**	1						
6.Achievement			-.158**	-.036	-.175**	.161**	.086	1					
7.TSES	47	7.44	-.044	.037	.128*	.240**	.149**	.241**	1				
8.IMTK	19	5.18	-.104*	.039	.055	.237**	.240**	.149**	.399**	1			
9.IMTA	14	4.92	-.109*	.007	-.046	.131**	.078	.227**	.324**	.689**	1		
10.EMIN	19	5.64	-.223**	-.038	-.080	.380**	.287**	.191**	.381**	.651**	.560**	1	
11.EMID	14	5.74	-.148**	-.067	-.081	.053	-.007	.129**	.247**	.418**	.653**	.427**	1
12.AMOT	9	5.54	.356**	.131**	.339**	-.333**	-.182**	-.219**	-.050	-.292**	-.114*	-.405**	.015

*** P≤.001, ** P≤.01, * P≤.05

Hierarchical multiple regression was used to predict vocational self-efficacy, intrinsic motivation, extrinsic motivation and amotivation from six of predictor variables. As it can be seen from the Table 3, vocational self-efficacy and academic motivation subscales are dependent variables. The independent variables are gender, age, field, academic achievement level, whether he/she was happy from his /her school and whether the school was chosen by himself/herself or not.

Table 3. Hierarchical regression analysis for vocational self-efficacy and academic motivation

Variables	TSES	IMTK	IMTA	EMID	EMIN	AMOT
	Beta	Beta	Beta	Beta	Beta	Beta
1.Gender	-.119*	-.144*	-.079	-.225***	-.126*	.226***
2.Age	.015	.057	.043	.062	-.015	-.042
3.Field	.228***	.109*	.011	.016	.015	.232***
4.Happy from his/her school	.181**	.170***	.099	.296***	.050	-.298***
5.School chosen by himself	.033	.151**	.020	.153***	-.043	-.083
6.Success	.229***	.102	.181***	.096*	.087	-.090*
R ²	.168***	.143***	.109***	.239***	.060*	.319***

*** P≤.001, ** P≤.01, * P≤.05

Table 3 contains the beta weights. Beta weights provide an appropriate criterion since unlike the percentage of variance (R^2), beta weights do not change when the order of predictor blocks changes. The relative importance of variables in each predictor was determined by examining significant beta. The absolute magnitude of beta coefficients indicates the relative strength of five of six variables as predictors of vocational self-efficacy and academic motivation. Table 3 depicts these results. As seen in Table 3, self-efficacy and academic motivation subscales were separately regressed on six predictor variables. All independent variables are important predictors of vocational self-efficacy and academic motivation levels of pre-service teachers except age. Age is not a significant predictor for the dependent variables statistically. These findings show that; being happy from his/her school a substantially important predictor of vocational self-efficacy and academic motivation, even when other predictors are statistically controlled. It explains a significant amount or increment in vocational self-efficacy and academic motivation subscales.

4. Conclusion

Academic motivation, as it relates to learning, is one of the foremost problems in education. It is regarded as an important subject in the field of educational psychology research. Determination of the factors that affect seniors' academic motivation and vocational self-efficacy levels of technical and **vocational pre-service teachers** may lead to preventions for raising seniors' academic achievement and vocational self-efficacy levels. Additionally, this can be useful in order to improve better training programs for education faculties. In this study it was intended to examine the impacts of demographic factors on academic motivation and vocational self-efficacy levels of technical and **vocational pre-service teachers** with a group of Marmara University, Technical Education Faculty seniors.

Inter-correlations among five academic motivation subscales are positively significant, except amotivation. Amotivation is negatively correlated with other subscales of academic motivation as expected. Amotivation as being opposite of other scales shows low motivation. Therefore, it is negatively correlated with other scales. Multiple regression analysis was performed in order to determine the factors that affect academic motivation and vocational self-efficacy levels of technical and **vocational pre-service teachers**. Results of the analysis provided clear support that demographic characteristic affects academic motivation and vocational self-efficacy levels. In terms of motivational theory, the motivational profiles of these students seemed to be well captured within the framework of self-determination theory (Deci & Ryan, 1985) by drawing attention to effective factors for academic motivation of students. This study contributes to the literature on motivation and self-efficacy in education. The study confirmed that students' academic motivation have been affected by some factors. Findings provide support for the view that demographic characteristics affect academic motivation and academic performance. These findings were similar with previous study findings. It was found that; motivation for chemistry lesson was a significant predictor of chemistry achievement (Akbaş & Kan, 2007).

In this study, findings also supported that demographic characteristics affect self-efficacy. To gain a greater understanding of the risk factors involved, subsequent studies of academic motivation and self-efficacy should examine different factors not only demographic characteristics. In order to prevent negative psychological effects of motivational problems on school success motivating factors should be used by teachers and parents. The results were also consistent with previous studies' results (Oliver & Simpson, 1988). It was reported that motivation levels of university students are affected by some demographic factors such as; their reason to choose the school, the probability of finding a job after graduation, order of preferences, future expectations, distinctive power of testing and measurement activities at school and their desire to do master degree, probability of finding

a job, attitude towards the teacher, social circle, level of income, appropriateness of the classrooms, efficiency of the educational material and number of siblings (Celikoz, 2009). Oner (1990) in her study has showed a significant negative interaction in between average scores of mathematics and general academic achievement with test anxiety scores. Yıldırım (2000) researched the effects of loneliness, test anxiety and social support on academic success and showed that the academic success was predicted by loneliness and test anxiety. Moreover, adequate educational materials (e.g., computer) provide a platform for efficient study at home and can motivate students to study. It should be provided motivating materials such as computer in schools for student use.

Consequently, education faculty seniors' academic motivation and vocational self-efficacy levels are affected by demographic characteristics such as; gender, field, being happy from his/her school, preferred the school by himself/herself and academic success. In other words, demographic characteristics are important factors for vocational self-efficacy and academic motivation levels of technical and vocational pre-service teachers. Although, the relative importance of these factors as predictors, at least for the Turkish students, should not be underestimated.

This study had several strengths and limitations. One of its strengths was the sample size of the study. The use of standardized measures and procedures was other strength. Many of the items included in the questionnaire measuring motivation and self-efficacy were objective situations or actions. The weaknesses were typical of many published studies. Replication with different subjects in order to determine the influence of different contexts on academic motivation and self-efficacy is necessary to increase confidence before generalizing to other populations. Replication attempts should involve different populations, longitudinal designs and appropriate control groups.

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4th International Conference on New Horizons in Education

Writing as Part of Foreign Language Acquisition

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Abstract

Writing can be characterized as a type of language performance with a certain graphical system that is suitable not only for fixing linguistic knowledge of language learners, but also to express their own ideas, attitudes, or beliefs. Writing (as one of the four language skills – listening, speaking, reading and writing) has always been part of foreign language school curriculum and written communication is usually systematically practiced and developed. However, one of the key questions is how to teach students to write in a foreign language. It is vital to understand that writing (not only in a foreign language) has its specific features and aspects and is different from the other skills. Its training and development requires a competent teacher and a prepared learner. The paper deals with various aspects of writing as part of foreign language education.

Keywords: education; foreign language; learner; skill; student; teacher; writing

1. Introduction

The area of foreign languages belongs to the so-called educational priorities of the European Union programmes. To be able to speak English is one of the key competencies of citizens of the European Union and its teaching has become obligatory on both levels of primary and secondary schools in Slovakia. The society therefore places high demands on teaching foreign languages at schools and schools should respond in a flexible way and react immediately. That is why schools present and offer innovative approaches and teaching techniques that respect individuality of every student. The aim of foreign language education is no longer just developing linguistic skills, but also influencing the development of the whole personality of the learner.

1.1. Writing

Writing brings significant effect in teaching a foreign language not only to students but also to teachers who work with them. It helps develop critical thinking, promotes student autonomy and encourages the student's confidence, speech and creativity. The question is, however, how to define creativity and who is considered to be a creative student.

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We must admit that there is no one right answer. There are various opinions on what creativity is and the term “creative student” is also not clearly defined. Creativity may be the ability to use new or innovative ideas and a creative student may be a student who is resourceful or with a good imagination or the one who can create / produce new things. Petrášová (2011) states that everyone has a certain degree of creativity that could further be developed. On the other hand, writing is often considered a "difficult" and boring activity by students and even teachers sometimes “worry” about it, especially with regard to issues such as: what topic to set, how to lead and bring students to high-quality results, how to evaluate the activity as well as the final product, what extend of writing should be set etc. What is writing as a skill, then? Everything we put on a piece of paper (or a PC screen or a mobile display) becomes writing: from the first half-hearted attempt to write a child's name, through common shopping list, sent e-mail or text message, to a published novel written by a famous writer. As we can see, the reasons for writing are different: it may be the necessity to inform someone about something; a way to express our own feelings, ideas and views; to submit a school task; create a project for our employer; or simply write for pleasure and enjoyment. These aspects are even more significant when writing in a foreign language. To handle them, however, means to move further towards our goal: to master a foreign language in the most natural way, to understand the differences of a foreign (target) language from our mother tongue, to think in a foreign language and to be able to express fluently our opinions. As Raimes (1983, p. 3) claims, “writing helps students learn.” Therefore it is the teacher’s role and task to help students understand the significance of writing in the process of foreign language acquisition. This process is related to mental (the so called cognitive) strategies, such as:

- thinking in the (foreign) language,
- recollecting in the (foreign) language,
- using the (foreign) language.

When thinking about how to teach our students to write in an effective way, it is necessary to be aware of specific features, aspects and differences that writing – unlike other skills – is typical for. It is vital to know what kind of writing we have in mind – whether writing for learning or writing for writing (Harmer, 2004). In writing for learning, mechanical writing is usually dominant, such as copying model words, sentences, text, with the aim to practise spelling, word order, grammar structures etc. However, mechanical writing does not need to be meaningless and the teacher may take advantage of students’ creativity also when performing such tasks. The learner could, for example, divide or integrate the given words in a logical way (according to their meaning) into pre-defined groups; in sentences he or she could change certain part of speech; sentences in a text organise into a logical order; etc.

When writing for writing, we do not consider only the structure of the text, correct punctuation, carefully chosen thoughts, the choice of style, register, or corresponding the title with the content. Here the student mostly shows the will or desire to express himself/herself, get to know himself/herself or the world around. During the writing process, the learner begins to be aware of some techniques and strategies that he/she is using, identifies with them and understands better some facts.

We can thus say that writing is not a mechanical and one-way process and teaching and practising this skill requires a competent teacher and a prepared learner. This is the reason we are trying to avoid the term “creative writing”. We share the opinion of M. Legat (1986) that writing is always an act of creativity. Whereas writing for learning may influence learners’ range of knowledge, writing for writing enables them to show not only their creativity but also critical thinking. It is thus the means of communication and tool for education as well as the form of self-presentation and self-development.

Writing may combine the usage of all the four language skills (writing - of course, reading, speaking and listening). It brings fun and strengthens verbal skills of the student. Writing for writing is about creating poems or stories, short comparisons, concise descriptions, compositions or academic essays, etc. The most important step before the actual writing process is to motivate students and thus involve them in the activity right from the beginning. A dialogue, reading an article, listening to an appropriate text or watching a video may be very stimulating. The next step is the choice of the topic. As Palenčárová (2008) says, in our (Slovak) classrooms it is usually the teacher who sets the topic. She, however, believes that this may suppress the student's individuality and he or she then becomes "dependent" on the teacher – that is why the possibility to choose a topic should be an inseparable part of the writing process. The topic should meet some requirements and therefore should be carefully offered: it should be appropriate to a situation, students' age and language level, their needs, interests, experience – in other words – it should be meaningful and inspiring. If the teacher is afraid that his/her students may choose an inappropriate topic, he or she can offer several ones to be chosen by his/her students. This kind of "responsibility" supports – in a very significant way – student autonomy in the process of his/her own learning.

The students are now motivated, an appropriate topic has been set but they still do not know how their final product should look like. Again, it is the teacher's task to bring and show an example that could be similar in content, length and other aspects and would meet the teacher's expectations. The teacher may spend some time on commenting on the example, highlighting the parts that are required or vice versa, show where weaknesses are and what the students should avoid.

When the students have some idea of the desired product, the teacher can let them create and put their thoughts on a piece of paper. This stage may be interrupted by the teacher's comments and notes, such as: "Could you be more specific to ...?" or "The reader will be interested in this – how did you mean it?" Using the remarks that do not criticise and are not profane or derisive, the teacher may show the "right" way to the student.

Another important step is evaluation. However, the final product does not always be evaluated by the teacher. Peers' comments and assessment may often be more effective feedback and the teacher may – at the same time – learn something about opinions and attitudes of his/her students. The emphasis should be placed especially on friendly and calm atmosphere in which assessment takes place; mockery or insults have no place here. Preparing evaluation criteria in advance is very helpful. The teacher (ideally in co-operation with students) may create those that are most significant and get familiar with them before the actual writing. Therefore everyone knows what to concentrate on during writing. A very practical tool could be a form for evaluators (Comment Form – see Appendix A) – those ones can orientate better in the issue and ask sensible questions. Even grammar mistakes and errors could be less "significant" than the content – in other words, our main interest is not only in the final product itself but we concentrate mostly on the process of writing, ways and techniques that the student uses to achieve his/her goal.

When writing, the student is forced to use various cognitive strategies, such as: repeating, organising thoughts into a logical unit, deciding (how to do something), summarising of what he/she has heard/read, guessing the meaning of words from the context, searching for key words in a text, detailed reading (the so called scanning) or fast reading (skimming), listening with comprehension, mind map creating, using visualisation or association to remember new words and many more. Those strategies support conscious manipulation with a language that is why the importance of writing during foreign language acquisition is irreplaceable.

As Sirotová (2009) says, one of the teacher's task is to form conditions in which students acquire permanent values, such as development of cognitive abilities of students, development of creativity and abilities to learn effectively. Writing definitely belongs to such conditions.

1.2. Research

In order to find out how our students write, what cognitive strategies they use during the process of writing and if the use of the strategies affects the quality of their final products, in 2011 we conducted a survey at University of SS. Cyril and Methodius in Trnava, Slovakia. Our respondents were second-year students of the bachelor degree, the study programme English language and culture in professional communication. After we had studied several sources (Eliášová, 2011; Harmer, 2004; Brown&Hood, 1993), we decided to modify some of the models of writing and created a basic model consisting of three stages: preparatory, processing and final. The following table No. 1 offers examples of cognitive strategies that may be applied in the individual stages:

Table No. 1 Cognitive strategies used within the stages of writing

Stages of writing	Cognitive strategies used by students
<i>Preparatory</i>	planning, revising new language structures, use of linking words, combining language units, revising of forms of writing text and punctuation, selecting ideas
<i>Processing</i>	outline, scheme – note taking, summarising ideas, searching for key information, getting information from a text (read or heard = integrating language skills), translation from/to mother tongue (or any other language = positive transfer), comparison, deduction, applying the learnt form of writing in new situations, revision of the text, selecting ideas
<i>Final</i>	text checking, text presentation, (self)evaluation

The preparatory stage enables the writer to concentrate on the task and select ideas that could be relevant. This is the space for the teacher to motivate his/her students. This stage should not last long in order not to lose the enthusiasm for the topic and ideas related to it.

In the processing stage, the writer concentrates mostly on processing his/her ideas and thoughts. Outline or a scheme could be very helpful. In this stage, revision, correction of the text and editing take place as well as re-writing the text in its final form. The teacher may help, guide and advise.

The final stage, as its name suggests, is the stage in which a draft has changed into its final product. It still can go through checking or final editing (e.g. when writing on PC) until the part in which the author has decided to finish. At the end of this stage, the author may present his/her text. The final stage is also the stage of evaluation – the teacher, a peer or even the author himself/herself may assess the process of writing and the final product. It is essential to highlight that to evaluate the process and the results requires a sensitive approach and pedagogical tact in order not to de-motivate the author when strongly criticised.

Every stage should be time limited according to the difficulty and seriousness of the task, maturity of authors and/or their language level. Time limit may also have a positive effect – writers are gradually getting used to working under stress and it can evoke increasing mind activity (Eliášová, 2011).

The stages could be applied when writing individually or in pairs/groups.

Our students were advised to use the model during a two-semester seminar called *Writing*. After completing the course we tried to find out if they could use the strategies also outside the classroom. We asked the students to write compositions and we monitored their comments on the writing process.

For the quality of the text we did not take into consideration spelling or grammar. We used the ideas of Gavora (1992) who says that a text should have certain properties: communication intention, cohesion and coherence. Communication intention is the aim the author intends to achieve in order to address the reader; cohesion means follow-up of the sentences in the text and coherence is related to thematic linking to the text. These three properties were taken as criteria of evaluation of the products.

The results are as follows:

Cognitive strategies that are present in the process of writing in foreign language education were practised and developed during the seminars on writing. Texts of those students who consciously and intentionally used them also during their composition writing was of much higher quality comparing to the students who did not apply them at all or only minimally. This gives us the answer to our question how development of cognitive strategies relates to the quality of students' writing performance. On the other hand, our research shows that although the strategies were practised deliberately, not all of the students use them in their practical lives; students either have not acquired them to adequate extend or they lack the ability to interconnect subjects and disciplines – to transfer information gained in one seminar onto the work in another one or in their practical lives.

The research shows that the position of teacher is irreplaceable even in the world of modern technologies. Foreign language teachers should encourage their students (regardless to their age or language level) to use various strategies in every stage of writing, they also should motivate, activate, guide their students in order to achieve a gradual automation of the writing processes. The teacher also uses those methods of practising writing that will strengthen their independence in thinking, acting and evaluating and thus learners' independence and autonomy may be formed.

As for the evaluation of written products, we would like to draw attention to the possibility of using this stage as an opportunity for learners to their self-assessment. Evaluation and self-assessment may significantly affect the use of learning strategies. Learners can easily identify their weaknesses but they also can learn about their strengths. This will positively influence their motivation not only towards learning a foreign language but also towards writing activities and may thereby strengthen positive relationship towards expressing their ideas or creating interesting texts.

In conclusion we may say that writing does not need to be a boring and unpleasant activity. When working in a friendly and cooperative learning environment and following certain rules, together with the teacher's humanistic and empathic approach and focusing not merely on the result but mostly on the process and strategies used, this could be a funny and creative part of every lesson no matter how "long" the final work will be. We do believe that learning and teaching a foreign language in our classrooms - whether related to writing or not – will bring much excitement and pleasure to our students and to their teachers so that every lesson could be enjoyable, interesting and fruitful.

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Appendix A

Comment form

When reading your classmates' texts, you could also tell them your responses to the following points:

My immediate reactions to this piece of writing are ...

I find the content ...

I like the part on ...

The part on ... could be further developed/elaborated.

You tend to ...

I'm not sure about ...

The specific language errors that I have noticed are ...

The best part of this writing is ...

Also, give suggestions on areas that need to be improved.

(Chan, 2001)

4th International Conference on New Horizons in Education

Pedagogical proficiency of a nurse as a contributing factor in patients' education

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Abstract

The notion 'proficiency' is used in different professional areas but less often than 'competence'. Proficiency defines higher level of professional development of a professional member of staff. Besides professional knowledge, the spectrum of proficiency competence is supplemented by experiential, metacognitive knowledge. The difference between a competent and proficient nurse is heterogeneous with a lot of output and input. The study will analyse patients' views on nurses' skills in the process of patients' education.

Keywords: patient; nurse; pedagogical skills

1. INTRODUCTION

When visiting health care facilities, we contact a variety of professional specialists and create an interactive system: Service provider - Patient. A Nurse is the first and the most recognizable professional and communication service provider. In our society a nurse is considered not only a professional who performs a variety of manipulations and educational work but also seen as mediator between a patient and a doctor, a person who might be asked for anything that remains unclear visiting a doctor.

Coming into a new situation, regardless the spectrum of medical institution, into a situation that is associated with health maintenance, a patient feels emotionally unstable. Cognitive concentration, which is influenced by the state of a health disharmony, depending on a severity of the disease or age, fear, confusion, stress, may be impaired. A new situation contributes to the formation of cognitive dissonance (Festinger&Carlsmith, 1959), until a new decision brings internal harmony.

A nurse should be prepared to focus on each individual's unique health condition, listen to the patient and explain the necessary information, thus giving the patient emotional relief and psychological balance in the case of unclear questions. Having competence is essential in both educating and taking care of patients - this can be described as an important interaction process (Wirth, Perkins, 2007). This is crucial to anyone who cooperates with people on a day-to-day basis as the use of competence severally affects the outcome of their actions - whether it shall be positive or negative.

Personal responsibility, ability to act in a principled form, according to the rules of professional conduct, both written and oral competence, interpersonal and teamwork skills, critical thinking and problem solving skills, respect to human dignity, adaptability, ability and willingness to learn- these are components of a professional image of a proficient nurse. Timely, in the correct tone of voice, self-contained, a patient-centered information, as well as responsiveness of a nurse- these are the most efficient criteria for a quality health-care in the point of view of patients. Time that health - care staff, including nurses, spend for each patient, lack of communication

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and feedback are the factors that have been marked as insufficient in Eurobarometer research (Eurobarometer Qualitative Study, 2012) and these are factors that are important for each individual coming into a new situation. Studies have shown (Carlsen, Aakvick, 2006, Henderson, 2002, Langewitza, Nüblingb, Weberc, 2006) that most patients prefer to engage in a joint decision-making which is based on the information and which is related to patients' satisfaction. It is absolutely imperative to have a sense of security in a new social environment and a dimensional vision of situations 'Now' and 'Tomorrow' (short version).

The spectrum of patients' educational activities is being affected by both, a nurse and a patient's multifactorial subjective and objective aspects. From the nurse's position: competence of a nurse which includes a critical analysis of the situation, experience, system of values, motivation, processes accompanied by reflection and the patient's feedback. For the patient: decision-making in the context of his/her situation almost always includes internal dissonance that is affected by the following factors:

- Cognitive skills- conceptual awareness of the situation which can be influenced by a health condition in the context of existing knowledge, reflection;
- Communicative skills- a willingness to communicate and cooperate;
- Personal qualities and incentives- ability to engage constructively, subjectivity of the values, expectations.

By assessing factors on time, a nurse can build a positive, result-oriented process of educating patients. There are several possible focuses in the nurse's practical work in patients' education. To help to explain the situation, provide, explicate perspectives, demonstrate empathy, understand patient's behavior by providing a constructive informational integration and explaining future directions and content - by doing the entire have mentioned it is possible to develop individual strategy for overcoming difficulties. Every patient understands the substantiation of situation, theoretical and practical strategy of developing situation differently (Edwards, Elwyn, 2009). Through understanding and motivation which may require a change in attitude while obtaining new or strengthening current information; it is, in fact, possible to take certain actions which would allow the patient to distinguish the value of having a vision of the future in the context of the theory of expectation by taking into consideration the argumentative actions (Fishbein 1980; Southey, 2011) and planned behavior aspects (Ajzen, 1991), along with being aware of the role of personal contribution and the positive outcome.

Educational activity is possible in aspects of health promotion, restoration and maintenance. In health care, communication with a patient is focused on three –function model (Misra-Herbert, 2003):

- Engaging with patients;
- Assessing patient's problems;
- Managing patient's problems.

Targets in patients' education may have different orientation, possibly overlap in content:

- Practically (activities in the particular situation, investigations, medications, exercises, etc)
- Psycho- socially (develop perspectives, enhance understanding of values, motivation)

When educating and advising patients, every factor has a significant role - to provide knowledge with the task of reducing patient's suspense, and to help patients` with decision-making and acquire the necessary skills in the particular situation. Information provided has to be true, impartial, constructive, and very important aspect, forehanded.

In the educating process, the result of the consultation and decision is associated with the patient's priority values, their possible changes in a patient's life; this is a factor which largely determines patient's future behavior. Ethical principles are based on the theoretical aspects of humanistic psychology that states it is essential to respect a person who is given an informative, educational assistance. Tolerance towards patient's judgments, understanding aspects that are important to the patient – these are some aspects of a nurse's work proficiency.

The selected methods how to inform and educate a patient could vary: negotiations, dialogues, visual aids, charts, booklets, etc. In cases when it is needed to present the information in different ways-using written information, booklets, visual aids, charts or other educational resources, a nurse is still responsible for providing the patient with complete, verbal information. Besides psychological context, there are several factors that determine the choices of a nurse which pedagogical method to use to reinforce the information provided:

- Location:
 - Topping the patient's knowledge, skills and attitudes while being in Hospital;
 - Topping the patient's knowledge, skills and attitudes in the communication process while being in the Primary Health Care Practice;
- Forms of interaction (planned/unplanned);
- Range of the length of the communication (short-time, one-time communication, long-time communication, repeated communication);
- Personal and professional values of a nurse, nominating responsibility as a priority. Responsibility for the quality of the educational process, a critical evaluation of the situation, application of relevant pedagogical methods in a context of the professional level.

Not a less important factor in the process of education in acknowledgment of a patient's cooperation, especially, if a long-term treatment is expected. The mission of a nurse is to promote, develop patient's skills, abilities, to help the patient to understand the importance of personal responsibility, not to create an illusion of wardship. Theory of Participation (Ferrer 2002) is based on finding a turn from a patient's inner, subjective opinion to cooperation with the stuff through mental and transpersonal (mind, consciousness, body) understanding.

Besides all the above mentioned preconditions, nurse needs to determine the amount of patient's knowledge that has to be improved, reflections which is a part of a cognitive process, that has to be integrated. If a nurse bases his/her educating and professional performance on reflection as a deliberate inner activity and necessity, then effective patient-nurse interaction is promoted. It promotes the patient's well - being which is one of precondition for successful further cooperation between a nurse and a patient. It increases responsibility of a nurse and helps in professional decision-taking.

Patients absolutely prefer such health-care institutions and staff who give the information in a clear, plain and welcoming manner. Sometimes patient's expectations and the real situation that a patient faces in a primary or secondary health care practice are different.

The Definition of Patients' Education (Healthy People, 2010) states that the given information includes educational resources for patients about their health conditions in order to help them to regain good health, maintain therapies and understand alternative approaches. From this appears that patients' education is individual-centered (at their awareness level), understandable and effective process of providing information. To recognize, define and solve problems, and to work out situational strategy, in a communicative period a nurse can use a variety of theories of delivering the messages and including them in a methodological action.

Working with patients, quality models of cognitive constructivist theory is a priority, where in order to preserve the patient's psychological, physical and emotional balance in the context of current situation, with a help of a nurse, adaptation takes place on the background of accommodation and assimilation. In the beginning it occurs in a cognitive aspect, and, if the situation determines, in a physical aspect, too. Where the knowledge needs to be developed or supplemented repeatedly, activity is already partly based on Kolbs (1939) experience - empirical learning model (Boore, Deeny, 2012) where the particular experience interchanges with a promotion of new concepts that are tested in a practice by using reflexive evaluation.

Choosing relevant method of the action, a nurse has to base her/his decision on the synthesis of critical analysis, psychological competence and sensitivity. Critical thinking is a strategy when thoughts move from the general to ultra-narrow focus by asking questions and choosing arguments (Marquis, Huston 2008), (Paul&Elder, 2004) until a decision is made.

The chosen pedagogical methods, depending on a situation, formulated objectives, identification of common correlations, and on the nurse's experience, can be used together with different micro-level (a nurse and a patient/individual) communication and cognitive theories:

- Argumentation Theory (Mercier, Sperber, 2011; Apsalons, 2012) - (observation, content, reasoned argumentation). Pro-actively used argumentation can facilitate a decision-making but not always gives the best results.

- Cognitive dissonance, improving awareness and internal contradictions, conflicts, collision, resulting in a decision-making and in a change of attitude, behavior (Taylor, Marinou, Fiddler, 2000). Taking into consideration that a positive result is possible by respecting the particular case through five dimensions: motivation, action, and objective, the context of the situation and effect of short-term social factors.
- Developing resumptions (Kenzie, Cameron, 2009) - change of the attitudes that is based on persuasion by considering the potential opportunities and promoting motivation.
- Text Comprehension Theory – (Kintsch, 1998) - verbal, non-verbal information: announcement, assumption that is relevant to the intonation of the speech, semiotics, considering cognitive capacity of the individual and environmental factors.

Depending on the context of a situation, to promote professional, psychological and pedagogical interaction, also taking into consideration the amount of patient's theoretical, practical knowledge and experience, and identifying the patient's learning style, a nurse chooses the most relevant methods of providing information that would facilitate patient's cognitive, emotional and psychomotor areas.

By adequate use of components of pedagogical proficiency which are facilitated by synthesis of the nurse's attitude and their subjective standards, it is possible to create a successful stage for patients' knowledge which is essential for providing further patients' performance and their emotional comfort.

Research object:

To identify nurses' prevailing pedagogical work methods in a context of communication and patients' education; application of which (methods) can positively or negatively affect patients' understanding and complementary forms nurses' proficiency image as a public educator. Getting into the primary or secondary health care institutions, every patient expects to receive an educational support from a nurse. An educated individual, patient in the context of personal case is able to be psychologically and emotionally balanced and take reasoned decisions.

Research aim:

To perform an analysis of the empirical quantitative research, by assessing patients' views on nursing enforced teaching methods, based on the respondents' experiences in primary health care centers, further in the text (PHCC) and in secondary health care centers, further in the text (SHCC).

To compare respondents' answers (urban respondents, rural respondents), taking into consideration their place of living (city, countryside), to find out if there is a difference between the social group views in assessing nurses' job.

Both two social groups of respondents are secondary influenced by different economic conditions. Disappointing economic conditions (rural population) conditionally possible can create more negative, tense evaluation when assessing aspects of professional activity of health care staff – nurses, visiting both PHCC and SHCC.

Overall, between the two groups there is no relation, thus data analysis can be based on the finding whether answers differ or not.

Research question:

What are the working methods with who nurse demonstrate Pedagogical Proficiency in the process of patients' education?

2. Methodology of the research

In a practical part of the study a questionnaire has been used to find out (n- 407) voluntary members of the public / patients' point of view. Assessing questionnaire: Likert's 5-point scale has been predominantly used (1. – Totally agree, 2. – Partly agree 3. - Neutral 4. – Partly disagree 5. – absolutely disagree).

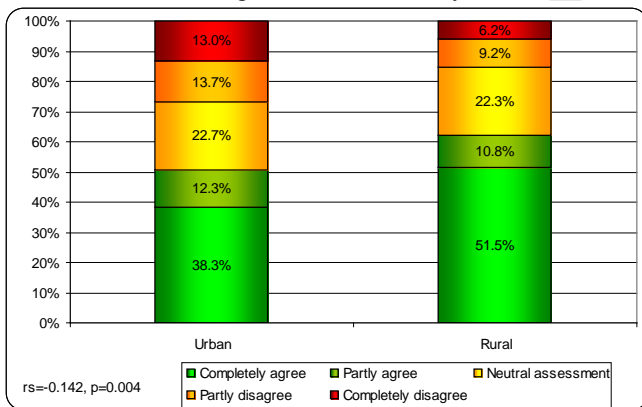
On two questions it was possible to specify several possible answers. Processing data with Microsoft Office Excel and SSPS v.17 software, scores were calculated, descriptive statistics: Frequency (F), percent (%). For evaluation of qualitative difference of patient groups *Pearson's hi-square (χ^2) indicator z-test, Fisher's precise test* were used. To determine associations between variables correlation analysis was used. The correlation calculation method was dependent on the variable scale. If one of the variables were on ordinal scale, nonparametric *Spearman's rank correlation coefficient* was used.

3. Research results

There were urban respondents (n= 277) and rural respondents (n= 130) taking part in the survey, comprising total number of respondents (n=407). To build a successful future cooperation with the patient, communication with patients plays an important role in health care (Misra – Herbert, 2003). According to respondents' evaluation using 5-point Likert scale, when addressing patient, a nurse needs to use a basic code of work ethics and always ask about patient's problems (table 1).

Using *Pearson's hi-square (χ^2)*, it was concluded that (p=0.058), which is very close to the limit, dominated by the two answers - strongly agree and strongly disagree (table 1.), and it shows the difference in answers of the urban population (first column) in comparison with of the rural population (second column). The rural population has more positive responses than the urban population whose responses are more negative. Relationship between the two variables is statistically significant, but very weak.

Table1. When meeting, does a nurse always ask me about my current problems

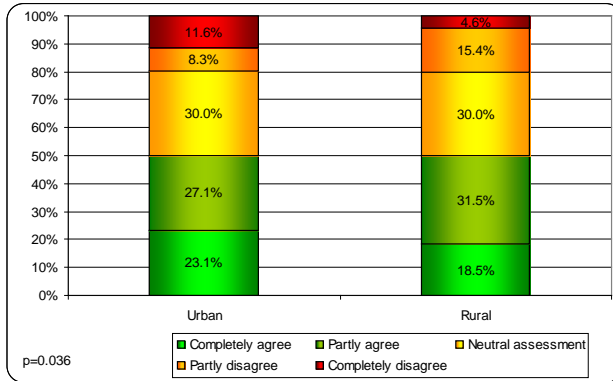


According to Wilkonson's test rating- to find out if nurses are supportive and address the patient first to identify the problems, respondents' rating is (p=0,037), where PHCC nurses are evaluated more positively than SHCC, compared to Spearman's correlation test, it is showing a medium close relationship (rs = -0,142, p=0,004).

In the question (table 2) which assesses if nurses in their professional performance are tolerant and **listen to patients' thoughts and opinions** (Taylor, Marinau, Fiddler, 2000), the main differences are between the two response groups – 'partly disagree' and 'completely disagree'. This is statistically significant by Pearson's hi-square (χ^2) test (p=0,036). Significant responses are partly agree (8.3%) - urban respondents and (15.4%) - rural respondents, and completely disagree (11.6%) - urban respondents and (4.6%) -rural respondents that indicates an overall positive trend in nurses' attitudes to listen to the patient to enable the patient to ventilate their feelings and opinions in order to discuss, recommend solutions of further action. However, it is also very important to pay

attention to that there is no correlation at all between the two groups thus we cannot conclude that one of the group has more positive or negative responses but only that the responses are different.

Table 2. Do nurses listen to patients' thoughts and opinions



To compare responses, parametric Wilkison's test has been used for comparing two sample-dependent ($p = 0.037$), and that shows a statistically significant difference between PHCC and SHCC nurses' work and shows a trend that primary HCC nurses are evaluated more positively than secondary HCC nurses. This is evidenced by Spearman's test results where, with a relatively low correlation coefficient it can be concluded ($r = 0,009$; $p = 0,852^\circ$) that the attitude to PHCC nurses is more positive than to SHCC nurses.

Answering the question if nurses educate patients responsibly, patient's opinions indicate a statistically significant difference according to hi-square test ($p = 0,036$), but the z-test only indicates the importance of neutral rating – rural residents chose the answer option more often than urban residents. According to the Spearman's correlation test, there is no relationship between the variables ($r_s = -0,015$, $p = 0,767^\circ$), therefore no conclusion about tendencies of the answers can be made.

The table 3 reflects potential applied teaching methods in nurses' everyday work to educate patients. Appropriate use of those methods can help the patient to obtain further education that forms the psychological safety in the context of current situation and is able to strengthen the patient's understanding and is based on the aspect of argumentation theory (Mercier, Sperber, 2011; Apsalons, 2012).

Table 3. Frequency of the applied learning methods in primary and secondary health care (n – 407)

Method	Frequency of the applied methods in primary health care		Frequency of the applied methods in secondary health care	
	Frequency	Percentage	Frequency	Percentage
Posters	28	6,9	28	6,9
Mulages	17	4,2	15	3,7
Write information on a sheet of paper	172	42,3	126	31,0
Issued pre-prepared information sheets	104	25,6	111	27,3
Issued a booklet on the disease	85	20,9	77	18,9
A written information about other professionals	52	12,8	53	13
Information about diet	33	8,1	37	9,1
CD demonstration	5	1,2	4	1
Refers to the educational web resources	1	0,2	19	4,9
Refers to Youtube resources	14	3,4	10	2,5
Refers to informative literature resources	29	7,1	26	6,4
Draw a schematic	48	11,8	41	10,1
Invites to the lecture	21	5,2	9	2,2

Table 3 shows which pedagogical methods besides verbal information nurses use too rare, according to the frequency (F) and percent (%). Describing statically, without grouping the respondents by place of residence, the following answers dominate - 'Write information on a sheet of paper' and - 'Issued a booklet on the disease' which having regard to the number of respondents (n = 407), is a small number. Comparing table 2 x 2 results according Fisher's exact test, there are no significant static differences depending on a place of residence. Informational source - 'Issued a booklet on the disease' (p=0.068, r =0,062) p-value is close to the range from 0.05 to 0.1, therefore we can talk about possible trends.

According to Fisher's exact test, there is a statistically significant difference in answer variants 'Youtube' (p=0.034, r=0,028), which is chosen more by city dwellers than those from the countryside. 'Write information on a sheet of paper' option has p-value is above 5% but within the limits of 10%, so it may be possible to talk about trends.

According to the Wilcoxon rank sign test results, there are three pairs of options that has statistically significant differences between primary and secondary HCC - 'Write information on a sheet of paper' (p=0.066, r=0,058), 'Refers to the educational web resources' (p=0.044, r =0,040) and 'Invites to the lecture' (p=0,014). Internet resources as one of the teaching methods of patient often uses SHCC staff, but gives written information and invites to the lecture - PHCC staff.

4. Conclusions

The purpose of the research was to identify nurses' dominant pedagogical working methods in communication and patients' educational aspects that proves nurses' pedagogical proficiency.

Nurses' communication and applied teaching methods were evaluated in two groups of health care facilities: in primary health care centre (PHCC) and secondary health care centre (SHCC). Then the opinion of the respondents were analyzed (n=40) to evaluate nurses' work, considering respondents' place of residence. Having regard to the unevenly developed economy in Latvia, this factor conditionally can provide a variety of estimates. By using difference analysis test, it was determined whether the differences are statistically significant at any particular factor (in this case –a place of residence).

Analyzing the frequency of the applied educational methods in primary and secondary health care ,it's been concluded that nurses' work in patients' education is strongly dominated by verbal educational way which may not always provides the patient's full understanding of the current situation as well as prospects for the future.

According to the author's point of view, identifying the range of methods employed and also analyzing the focus of patients' education in PHCC or SHCC, research results indicate that nurses use relatively little information or alternative methods to enhance education. The result may have both objective and subjective reasons (too high congestion, lack of motivation in the work result, inappropriate workplace for consulting a patient).

Comparing patients' assessments about nurses' additionally used educational methods in primary and secondary health care stage, besides verbal education, there are no sign of very significant differences in answers between the two groups of respondents, only the conclusion that there is a lack of additional pedagogical methods

As a result trends can be observed that are desirable to highlight in the work with the nurses in the training process. Analyzing nurses' communication activities which are focused on the tolerant and empathic treatment of patients which, in its turn, is important to have a positive collaboration in the case re-appointments, it is concluded that there are relatively positive trends according to Likert's scale 5-point evaluation. The test highlights that rural residents' assessment of nursing communication is slightly more positive than urban residents' assessment. It rejects previous assumption that the differences in the economic situation are capable of forming a negative evaluation for nursing activities. However, as a whole between the two groups there is no relation, it is concluded that differences in respondents' answers are not related to place of residence, but with some other internal and external factors.

Comparing patients' evaluation of nurses' work in PHCC and SHCC, we can conclude that nurse's work in PVAC is being evaluated a bit better than in SHCC., The assessment may affected by the communication time, patients' short stay in PHCC, as a result, it scores nurses' attitude in a small period of time.

The study included the evaluation of nurses in the number of dimensions, which proves that patients are more positive about nurses' communication skills and points to the need to develop skills to diversify range of methods for providing information.

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The Contribution of Technology Acceptance and Community Feeling to Learner Satisfaction in Distance Education

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Abstract

In this study, the contribution of technology acceptance and community feeling to student satisfaction in distance education have been analyzed. Research methodology is designed as descriptive and correlational. The participants were 464 distance education students. As a result, technology acceptance and community feeling have been found in a positive and high correlation with student satisfaction. Technology acceptance contributed more than community feeling, in predicting student satisfaction. Perceived usefulness has been determined as the variable which explained student satisfaction highest by itself among other variables namely, perceived ease of use, affective and action dimensions. Furthermore it was found that there are statistically significant differences between students who were using and not using online environments in community feeling score.

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Keywords: lifelong learning, adult learning, e-learning, satisfaction, distance education

1. Introduction

Recently, distance education has become a greatly demanded option by people. The increasing education demand, time limitations, and geographic obstacles increased the demand of distance education day by day. By the development of information and communication technologies, the problems based on time and place have been overcome and this situation made distance education become qualified in many aspects. Besides the increment of demand devoted to the distance education, empty quotas and the ratio of students who drop out before graduation, release the importance of quality factor in distance education. According to the report which was prepared by Moore (2005) for Sloan-C, affective learning, access, student satisfaction, institutional satisfaction and cost effectiveness form the salient indicators for assessing quality related to retention in distance education. Among these quality indicators, student satisfaction plays a crucial role in distance education. Understanding the student's perception is the first step for composing and performing a successful online learning environment (Sahin & Shelley, 2008). The drop-out rates for students in distance education are higher relatively for those in traditional education (Rovai, 2001a). The students' satisfaction levels are also found being low who drop-out the education program before completing as a result of being not satisfied of needs and

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expectations. The researches, related to information systems, show that the user satisfaction is one of the most important factors of the success oriented to system. There are several factors that influence the student satisfaction in distance education. Some of these are; interaction (Driver, 2002; Kim, Liu & Bonk, 2005; DeBourgh, 1999; Dennen, Darabi & Smith, 2007), communication (Rovai, 2002a; Casey, 2004), demographic properties, design (Hartman, Dziuban & Moskal, 2000; Aşkar, Dönmez, Kızılkaya, Çevik & Gültekin, 2005), evaluation (Maki & Maki, 2003), face to face activities (Brown & Duguid, 1996; Esch, 2003; Stein & Wanstreet, 2003), technical and instructional support (Allen, Bourhis, Burrell & Mabry, 2002; Ham, 2002; Rekkedal & Eriksen, 2004; Dibiasi & Rademacher, 2005), self-efficacy (Lim 2001; Ham, 2002), cognitive styles (Foell & Fritz, 1995; Brenner, 1997), learning styles, isolation. There are many studies which explore the student satisfaction in distance education, reveal its importance and compare it with different environments – hybrid, blended, online- (Allen et al., 2002; Johnson, Aragon, Shaik, & Palma-Rivas, 1999; Rivera, McAlister, & Rice, 2002; Summers, Waigandt, & Whittaker, 2005). The communication between people in a distance learning class and other members of a class which are far away, is provided by electronic media and the quality of this communication is affected depending upon how this electronic media is used. For this reason, as the students' attitudes and the technology usages will affect their satisfactions towards distance education, the researches were performed to analyze student satisfaction within the framework of Technology Acceptance model. Researches show that the perceived usefulness and perceived ease of use are the major components that increase the usage of the sources by students that take part on the internet (Lee, Cheung, & Chen, 2005; Mitchell, Chen, & Macredie, 2005). People, who encounter the online class environment after the ordinary face to face interactions in the traditional class environment, may not take advantage of the interactions efficiently. As a result of the physical distance in distance education, the decreasing sense of community causes the feeling of not involved to the community, isolation and this situation can be resulted with quitting the program. At the environments in which the strong feeling of community is developed, the state of belonging is high and this increases the motivation of students. Also, the interaction has been determined as one of the most important variables in determination of student satisfaction in different researches (Jung, Choi, Lim, & Leem, 2002; Kearsley, 1995; Lu, Huang, Ma, & Luce, 2007; Summers et al., 2005). In this research, contributions of the components -technology acceptance and feeling of community- on the satisfactions of the students who participated to a distance education program were analyzed. Towards this aim, the research was performed after three different scales had been developed.

2. Theoretical Background

2.1. Technology Acceptance and Student Satisfaction

A key purpose of Technology Acceptance Model (TAM) is to provide a basis for tracing the impact of external factors on internal beliefs, attitudes and intentions. TAM, that analyses how the information and communication technologies are accepted and used by individuals, is also quite important in the aspect of the individuals who take online lessons. In a distance education environment, in which the technology is an important tool, individuals' belief of perceived usefulness and ease of use are the main factors that affect the attitudes and behaviors of usage of technology. Usluel, Aşkar and Baş (2008) suggested a structural equation research within the framework of Diffusion of Innovation (Rogers, 2003) theory, to examine the information-communication technologies (ICT) diffusion in universities on the basis of faculty members' ICT usage. Two dimensions of ICT usage are taken into consideration: Instructional and managerial. The findings of the study show that the faculty members mostly use ICT as a means of communication and for searching information about the course through the Internet; and the least, for publishing their lecture notes and the announcements concerning the course assignments, projects-on web. ICT facilities were found to have a strongly positive effect on ICT usage and positive effect on perceived attributes. As a result, it was suggested that ICT usage in classrooms should be more widespread, and faculty members should be supported both technically and

educationally and the process should be institutionalized via the framework of the policies and strategies of universities. Sun, Tsai, Finger, Chen and Yeh (2008) while analyzing factors that affect student satisfaction, they also analyzed effects of perceived usefulness and ease of use. As a result it is founded that the perceived usefulness influenced student satisfaction significantly. An e-learning system provides useful content and helps to prepare students for future career advancement because of being an alternative to working people. Therefore the higher the perceived usefulness of an e-Learning system, the more satisfaction learners have. Besides, perceived ease of use also has a significant impact on e-Learner satisfaction. An e-Learning system's ease of use makes it possible for individuals to devote their attention to learning the course materials instead of spending additional effort learning the instrument. Consequently, a higher learning satisfaction should exist.

2.2. Community Feeling and Student Satisfaction

In non face to face environments individuals can express their feelings by symbols and words instead of physical notation, facial and verbal expressions. Rovai (2002a) determines that in addition to forming a reality sense, the sense of connectedness is also formed between the members of strong community of class. These people have responsibilities and obligations to each other and to the school and also they possess a shared faith that members' educational needs will be met through their commitment to shared learning goals. At the community feeling which is divided into two categories as school and classroom community feeling; classroom community is a feeling in which the members have feeling of belonging, have responsibility to each other and group, and perform the duties and responsibilities to school, behave together for the shared purposes. The school community consists of a community which includes administration, teachers and other people in a more formal frame (Rovai, 2001b).

Rovai (2001b) defined classroom community components, including McMillan and Chavis's (1986) four components of community dimensions. These components are spirit, trust, influence and learning. Spirit shows the acceptance of the membership in the community and develops the feelings of friendship, commitment and satisfaction between the students. Trust is the second one of the class community components. It will be friendly and constructive if the community can be trusted and be given feedback by individuals. When individuals have been accepted by a growing and developing community, they feel more in safe and start to trust to community. The third component, influence is the feeling of closeness and mutual benefit between the individuals. The last component learning is the feeling that community enhances the acquisition of knowledge and understanding, and also the feeling of active information and meaning conformation which supplies the educational needs of the individuals that it consists of.

Because effective learning has important social and cognitive dimensions, it occurs when there is a strong sense of community (Rovai & Wighting, 2005). However physical distance decrease the connectedness between students, it is possible to create and keep a strong feeling of community by information and communication technologies. According to the research results, the community feeling of students has so many positive effects. Strong community feeling have positive outcomes as increasing the flow of information, access to support, collaboration between the members and satisfaction about the group activities (Rovai, 2000). By increasing the numbers and qualities of interactions in distance education programs, the community feeling in online mediums can be improved. In a research, it was founded that there has been a positive and significant effect of creating a social environment and students' social integration into this environments on drop out rates. In distance education programs learning needs can be attractive for adult students but it isn't enough to maintain the program (Ashar & Skenes, 1993). Wegerif (1998) founded that how central collaborative learning was to feelings of success or failure on the course and second how important social factors were to this collaborative learning. According to Brown and Duguid (1996) when enrolled in distance education programs, student participation in institutional life is often limited and may consist of infrequent residencies with little face-to-face

contact with other students, professors, and administrators, thus limiting the true involvement of distance students in institutional life. Consequently, there is a concern among some educators that distance education does not promote community. Rovai and Jordan (2004) aimed to analyze the relationship between traditional, blended and fully online higher education environments and community feeling. Sample of the research was consisted of master students and primary school teachers which of 24 enrolled in traditional, 23 in blended and 21 in online education program. According to the results, blended course has been a higher and significant relationship on connectedness than either the traditional or online courses with a larger effect size.

2.3. Student Satisfaction in Distance Education

Satisfaction can be defined as rank of meeting expectations, emotions and convenience level of an environment or situation. Student satisfaction can be defined as being satisfied from learning-teaching activities and services on students (Sener & Humbert, 2003). When distance education environments analyzed, a lot of factors coming up that affect the satisfaction. Some of these researches were intended to determine these factors:

Aşkar et al. (2005) searched the effects of blended learning on student satisfaction by the frame of usability, instructional design and implementation dimensions. Sample group defined from undergraduate students and the course was delivered as both web-based and face-to-face. Findings of the research showed that interaction was a critical component in online learning environments. Therefore it is founded that blended learning has positive effects on student satisfaction by increasing the interaction.

In 1999 the researchers created two groups, by the purpose of comparing student outcomes in face to face and online learning programs. One of these groups take the instructional design lesson via face to face environment and the other group take the same lesson via fully online environment. At the end of the research it is founded that online learning students' satisfaction scores are higher than face to face learning, at the same time no difference is founded about student outcomes. This research findings confirms that the online learning as effective as traditional face to face learning (Johnson et al., 1999). Allen et al. (2002) found that degree of student satisfaction and courses have a very important role on development of effective distance education implementations. 24 articles were analyzed in this meta-analysis research and no difference was founded between distance education and traditional education on student satisfaction level. This finding shows that students find distance education as satisfactory as traditional education.

In a research which compared satisfaction of students in three different course formats, it is founded that degree of student satisfaction on web based lessons is lower than traditional environment and hybrid learning environment. Researchers binded that to students' young age and underdeveloped computer and web usage skills. Also it is suggested that this information deficiency has a negative effect on student satisfaction (Rivera et al., 2002). Yükseltürk (2007) searched the student satisfaction in a distance education program which is based on synchronous and asynchronous communication methods. The main purpose of the research was defining the relationship between online technologies self-efficacy, online learning readiness, and locus of control, prior knowledge and student satisfaction. 62 students and 8 instructors were participated the study. Quantitative and qualitative data collection methods were used. According to the results, a significant relationship founded between students' perception of online learning readiness and satisfaction. It is defined that the overall satisfaction, satisfaction about course structure and flexibility decrease over the semesters in the program.

Summers et al. (2005) compared the student satisfaction and achievement in traditional face to face environment with online learning environment in statistic lessons in a research. According to the study results students in online learning environment are less satisfied than in traditional learning environment. And this finding considered that there wasn't enough interaction between student and instructor. When students don't get enough feedback in an online course, they feel frustrated and tend to drop out the course (Kearsley, 1995).

Between 1999 and 2001 years, in a research it is investigated that the effects of immediacy behaviors on student achievement and satisfaction in University of Wisconsin. The results of the research showed that immediacy behaviors were positive predictors of student achievement and satisfaction. Also in this research, it is founded that students' attitudes toward course software, the length of a course and prior experiences were significant predictors of satisfaction (Arbaugh, 2001).

2.4. Research Questions

What is the contribution of technology acceptance and community feeling to learner satisfaction in distance education?

- Do technology acceptance and community feeling predict learner satisfaction significantly?
- Do online learning systems acceptance scale dimensions and community feeling scale dimensions predict learner satisfaction significantly?
- Does community feeling show differences whether using online medium or not?

3. Methodology

3.1. Participants

Data collection part of the research has been carried out in two stages. In the first stage, scales which are data collection tools of research are developed. In this stage the participants were consisted of the 731 freshmen of a Ankara University Distance Education Center in Turkey in 2007-2008 terms. The program which the students enrolled in, is a blended distance education program in which an online orientation program, printed course books, online courses, video courses, discussion board, synchronous chat, 48 hours face to face interaction in each term and face to face exams are used together. 731 students have participated to the scale development stage. After the scale development stage, 464 sophomores are participated to the study as research group.

3.2. Design

In this research the descriptive and correlational research model is used. Confirmatory and exploratory factor analyses are used in the stage of development of measurement tools. After the scale development stage; descriptive statistics, multiple regression analysis, multiple stepwise regression analysis, one way ANOVA and canonical correlation analysis are executed to analyze data that are obtained from application.

3.3. Instrumentation

3.3.2. Online Learning Systems Acceptance Scale Development Process

Scale has been designed as 7 point likert scale and analysis has been executed with 574 data. As a result of exploratory factor analysis, the scale has been found being a two factor scale. Factor 1 is named as perceived ease of use and factor 2 is named as perceived usefulness. The Cronbach's α coefficient, which is the reliability coefficient of the scale, was examined and it was founded that $\alpha = 0,89$.

3.3.3. Community Feeling Scale Development Process

A community feeling scale was developed to determine the community feeling of students in distance education based on Rovai, Wighting and Lucking's (2004) studies. Originally, the scale has two forms as school and class.

In this research, the school form was performed by adapting it to the distance education setting and also increasing the number of the items. Scale has been designed as a 7 point likert scale and analysis had been executed with 571 data. The scale has been designed as a two dimension scale- action and affective- by considering the expression types of the items in community feeling scale. The CFA results were; [χ^2 (7, N=571) = 24.76, $p < .000$, RMSEA= 0.067, S-RMR= 0.034, GFI= 0.99, AGFI= 0.96, CFI= 0.99, NNFI= 0.98, IFI= 0.99]. The Cronbach's α coefficient, which is the reliability coefficient of the scale, was examined and it was founded that $\alpha = 0,80$.

3.3.4. Satisfaction Scale Development Process

The satisfaction scale has been developed by the researcher with aim of prediction of student satisfaction in distance education. There were 38 items in the scale for measurement the student satisfaction. The scale has been designed as a 7 point likert scale. As environment of the education program involved both online and face to face education, scale was provided to reflect the properties of this environment. The scale has been designed as a 6 factor scale that are student-student interaction, student-teacher interaction, online courses, technical support, printed materials, and face to face activities. The analysis was executed with 360 data. The values of last version of the scale were [χ^2 (509, N=360) = 1506.29, $p < .000$, RMSEA= 0.074, S-RMR= 0.067, GFI= 0.80, AGFI= 0.77, CFI= 0.98, NNFI= 0.98, IFI= 0.98]. The Cronbach's α coefficient, which is the reliability coefficient of the scale, was examined and it was founded that $\alpha = 0,96$.

4. Analysis

4.1. First Research Problem

A multiple regression analysis was applied in order to determine whether the technology acceptance and community feeling together predict the student satisfaction or not. The results of the analysis are presented in Table 1.

Table 1. Results of multiple regression analysis

Variable	B	Standard Error _B	β	T	p	Binary r	Partial r
Constant	47,538	7,230	-	6,575	,000	-	-
Technology acceptance	2,556	,204	,572	12,503	,000	,712	,620
Community feeling	1,537	,227	,310	6,769	,000	,567	,394
R = 0,763	R ² = 0,583						
F _(2, 250) = 174,565	p = ,000						

Technology acceptance and community feeling scores pointed to having a strong and positively significant relationship together on student satisfaction about distance education (R= 0,763, R²= 0,583, $p < ,01$). Technology acceptance and community feeling explained nearly 58% of the student satisfaction in distance education. Thus the effect size is 1,39 for R²=0,583 according to Cohen f^2 index. This result is an indicator of a large effect size. When the bivariate and partial correlations between the independent and dependent variables were examined, it was observed that there was a positive and high level relationship ($r=0,71$) between the technology acceptance and satisfaction. It was also observed that there is a positive and medium level relationship ($r=0,56$) between the community feeling and satisfaction. It is understood from β coefficients that the contribution of technology

acceptance on learner satisfaction is much more than community feeling. Symbolically, a prediction formula of the model can be presented as follows: Satisfaction= 47,583 + 2,556 * Technology Acceptance + 1,537 * Community Feeling

4.2. The Second Research Problem

A stepwise multiple regression analysis was performed in order to determine whether the dimensions of online learning systems acceptance scale and community feeling scale together predict the student satisfaction or not. Before making the stepwise multiple regression analysis, normality, linearity and homoscedasticity values of the data had been examined and verified for these three assumptions (Tabachnick & Fidel, 2001). The histogram, scattering diagrams and normal distribution curves showed that the dispersion was quite close to the normal. The results of stepwise multiple regression analysis is presented in Table 2.

Table 2. Results of stepwise multiple regression analysis

Variable	B	Standart Error _B	β	T	p	Binary r	Partial r
Constant	47,414	7,298		6,497	0,000		
Perceived usefulness	2,669	0,328	0,425	8,128	0,000	0,673	0,459
Perceived ease of use	2,322	0,568	0,210	4,090	0,000	0,576	0,251
Affective	1,537	0,336	0,220	4,580	0,000	0,538	0,279
Action	1,550	0,430	0,158	3,609	0,000	0,366	0,223

As a result of analysis it was found that the perceived ease of use, perceived usefulness, action and affective dimensions predicted student satisfaction significantly ($p < 0,01$). According to the standard regression coefficient β , the order of importance of independent variables in explaining the student satisfaction is; perceived usefulness, perceived ease of use, affective dimension and action dimension. At first perceived usefulness was joined to the model, and explained 45% of the model alone. Secondly, perceived ease of use was joined to the model with perceived usefulness, and they explained the 51% of the model together. Thirdly, affective dimension was joined to the model; with perceived usefulness and perceived ease of use and they explained the 56% of the model together. Finally, action dimension joined to the model and all of the four variables explained the model altogether at a rate of 58%. These results showed that the dimension of the perceived usefulness was the most powerful factor that predicts satisfaction. Symbolically, a prediction formula of the model can be presented as follows: Satisfaction= 47,414 + 2,669*Perceived usefulness+ 2,322* Perceived ease of use + 1,537*Affective + 1,550*Action

4.3. The Third Research Problem

One way ANOVA analysis was performed in order to determine whether the students' community feeling scores show differences or not with respect to usage condition (users vs non-users) of online environment. The results of the analysis were given in Table 3.

Table 3. Results of ANOVA analysis

Variable	Usage Situation	n	Mean	Standard Deviation	F	p	Levene
Community Feeling	User	253	29,43	6,45	5,312	0,022	0,058
	Nonuser	211	27,95	7,40			

According to the results of ANOVA analysis in which the scores that were obtained from community feeling scale were taken as dependent variables, it was found that there was a significant difference in terms of community feeling ($p=0,022$) and this difference was in favor of the students that are using the online media.

5. Discussion and Conclusion

In this research, relationship between technology acceptance and community feeling together and students' satisfactions towards distance education was found a medium level and significant. Also it was determined that the effect of technology acceptance was much more than effect of community feeling. Sun et al. (2008) defined 7 variables, namely, student computer anxiety, student's attitude towards e-learning, e-learning course flexibility, course quality, perceived usefulness, perceived ease of use and diversity in evaluation, which define the e-learning students' satisfaction in the stepwise multiple regression analysis. These variables explained the 66,1% of the satisfaction. When the duration of computer usage were examined, it has been revealed out that because most of the students had been using computers 3 years or less, they had difficulties in solving the technical problems that they had come across, and for this reason it is thought that the technology acceptance has a higher effect on satisfaction.

Results showed that students who thought that online learning systems are easy for use and useful for their learning, more satisfied about distance education. And also students who could develop community feeling, more satisfied about distance education.

It is seen that the online learning systems acceptance scale sub dimensions and community feeling scale sub dimensions predicted the student satisfaction together significantly. It is determined that perceived usefulness dimension was the variable that explains the 45% variance of the satisfaction alone and it has the highest prediction power. The other dimensions that follow the perceived usefulness in order are; affective, perceived ease of use, and action. It is seen that these 4 dimensions together explained the 58% variance of satisfaction. There have been studies that support perceived usefulness predicts satisfaction more than perceived ease of use (Sun et al., 2008).

The factors affecting the perceived usefulness have been also the subject of a series of research. For example; Aşkar (2005) found in a research that students in undergraduate degree seem more positive about distance education, especially if it is provided by a prestigious university and thought that it will increase the job opportunities. The perceived usefulness is limited by the factors given above but also it can include different factors too. Researching of this subject by both qualitative and quantitative methods may be important in shaping the distance education.

When community feeling analyzed both for using and non-using online environment, a significant difference was observed in favor of learners who were using online environment. In a research which supports the results of this study, additionally it was also determined that online conversation sessions and face to face interactions have a quite large effect on formation of community feeling, but discussion boards, forums have less effect on formation of community feeling (Lord & Lomicka, 2008).

In this situation it can be important integration of Web 2.0 applications to online learning systems which can be provide and increase community feeling. Web 2.0 technologies can increase the involvement of students to online learning environment. Using blogs, podcasts, wikis or social networks can increase interaction and community feeling that may also help developing learner satisfaction. Social software deliver communication between groups, deliver collaborative indexing and collecting information, has new tools for creation of knowledge, enables communication between many students, provides sharing resources, assists personalization of priorities (Owen, Grant, Sayers and Facer, 2006). Web 2.0 technologies can be used effectively in distance education through these features. Especially distance education learners have many choices accessible for their learning process.

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